User-Manual

KENTIX
Innovative Security

- AlarmManager-BASIC/PRO
- MultiSensors and KeyPad
- Accessories

kentix.com

1. Introduction and summary

Thank you for your decision to buy a KENTIX monitoring solution based on the KENTIX MultiSensor technology.

1.1. Features

The KENTIX AlarmManager-BASIC/PRO is the central system unit, where all the information of the MultiSensors are collected. The AlarmManager is installed in the server room or rack. It controls and forwards all alarm and fault messages to the responsible persons. The configuration is done with a comfortable PC client - the Kentix ControlCenter. For the connection and installation of the devices you can choose from two options:

- **Plug'n Play** installation with plug technology - without wiring and jamming
- **Fixed installation** with conventional installation cables

1.2. Applications

- Industry and Trade
- Banks
- Authorities and hospitals
- Telecommunications
- Law firms and medical practices
- Energy and water utility

1.3. Safety note

The installation of the AlarmManager must be run by a competent person.

The sole responsibility for protection against misuse of the SIM card is the card owner. The device allows the use of a PIN number.

In a power failure, the settings of the AlarmManager are not lost. Energized relays drop out and go back when the power returns in the unswitched output state.
The device sends power outages directly via SMS. The internal energy supply can protect short-term power failures for 3-5 minutes. To bridge a longer downtimes, use a suitable UPS system.

Installation
To ensure the security and integrity of the operator and the correct operation of the KENTIX AlarmManager, the execution of the installation only has to be done by an expert. There must also be ensured, that the relevant requirements are met.

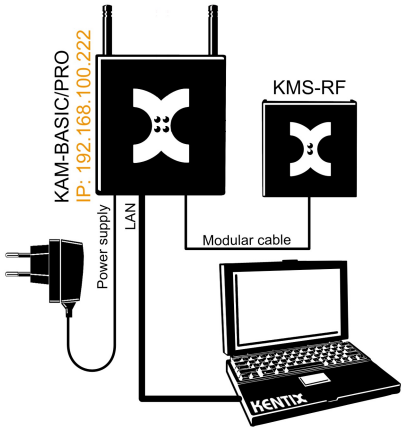
Environment
The installation must be such that the KENTIX AlarmManager and all associated cables are not affected by the environmental conditions listed here: *dust, humidity, excessive heat, direct sunlight, heat sources, devices that build strong electromagnetic fields, liquids or corrosive chemicals.*

See the technical data sheet for more technical data and environment conditions.

Protection
During the installation of the AlarmManager, certain degrees of protection must be guaranteed. Observe the relevant regulations for installation in certain environments such as industrial or residential and commercial buildings.

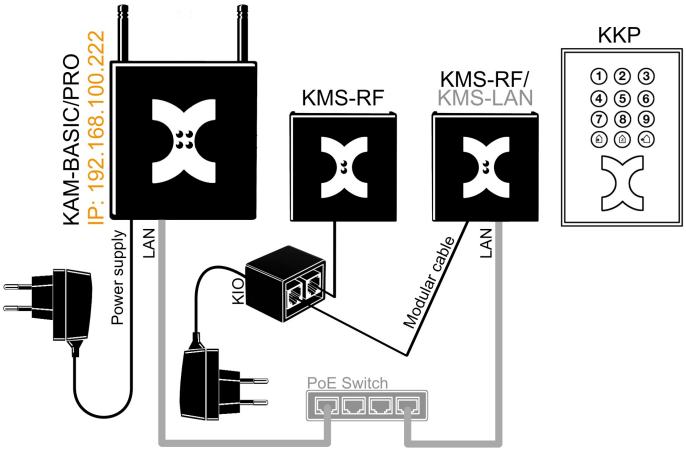
2. Connection examples and installation notes

2.1. CompleteSet 1



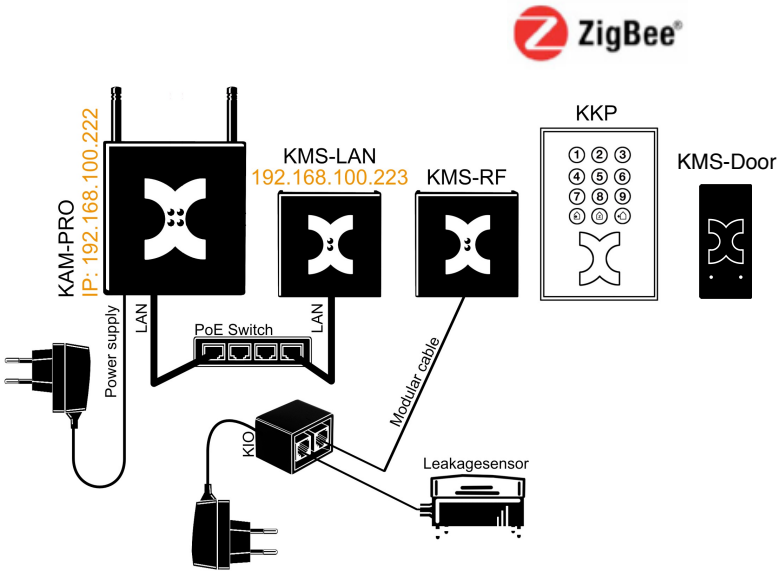
1. Connect AlarmManager and MultiSensor via Modular cable.
2. Connect power supply to AlarmManager and current.
3. Download, install and execute Kentix ControlCenter.
   (Software-Download on www.kentix.com)
4. Enter Kentix-Default-IP-Address (192.168.100.222) and the default user data (admin/password) and press „Login“.
   (check your own network-settings).
5. Setup IP-Address of AlarmManager in the Network settings.
6. Add Radio Sensor in „Sensor-Devices“.
7. Make individual setup.
8. Save the Configuration to transfer it into the AlarmManager.

2.2. CompleteSet 2



1. CompleteSet-PRO 2:
   Connect the MultiSensor-RF with the AlarmManager or the KIO-Power-Adapter.
   Connect the MultiSensor-LAN with a PoE-Switch.
   Follow steps 2 to 8 described for „CompleteSet-PRO/BASIC 1“.
2. The KeyPad is added to the configuration like a Radio Sensor.
   !! Important: For detection during the setup of the KeyPad it has to be kept active by pressing one of the function keys for every 5 seconds.
3. Save the Configuration to transfer it into the AlarmManager.

2.3. CompleteSet with optional equipment



1. **MultiSensor-LAN:**
   Establish network connection and external power supply, if needed.
   Connect to the sensor via browser by entering the Default-IP (**192.168.100.223**).
   Press „Login“ to reach configurations menu (Username: „**admin**“, Password: „**password**“).
   Activate AlarmManager communication in the network-section.
   After saving the settings and a restart, the sensor can be configured with the Kentix ControlCenter.
2. **Leakage-Sensor:**
   The connection of a Leakage-Sensor is realized with a KIO-Power-Adapter,
   either to the system-connector of a MultiSensor or the AlarmManager.
3. **MultiSensor-Door:**
   Start the teach-in process to add new radio devices in the ControlCenter.
   Press the „learn button“ of the sensor and keep it pressed.
   When pressing the button, the sensors plays a long sound which is repeated after about 5 seconds.
   Release the button after the second sound. The sensor should appear in the list after about 20 seconds and is configured automatically with the default settings. The successful configuration is signalized by a green checkmark.

2.4. Alarm-inputs

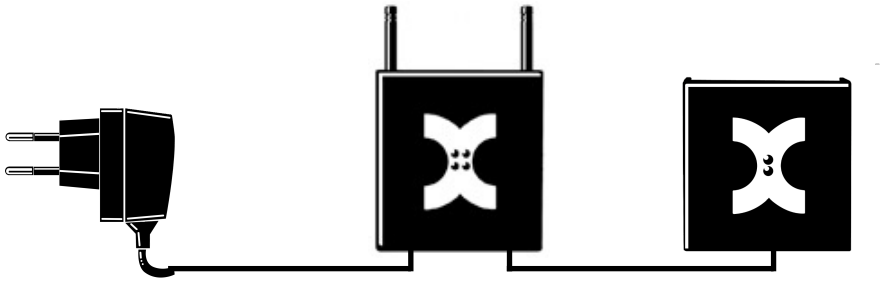
When installing the device follow the instructions in this manual. Please note polarity and technical data of the inputs.

2.5. Relay contacts

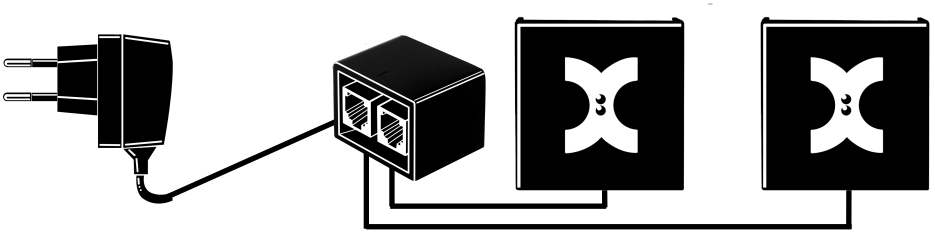
When installing the device follow the instructions listed in this manual.
Connected devices must installed properly following the specifications in this manual. Pay particular attention to the allowed supply voltages and services for the various consumers in the technical data-sheet.

2.6. Power supply

The devices are supplied with a DC voltage between 10-32VDC. Use only recommended power supplies or listed power supplies in this document. The polarity of the cable must not be interchanged. According to the two operation types "Plug'n Play" and "fixed installation", you can power devices from the plug power supply or via a fixed connection.



Example 1: Power supply of one MultiSensor via the system jack of the AlarmManager



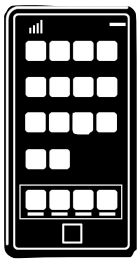
Example 2: Power supply of two MultiSensors via Power Adapter (KIO1) and plug power supply

Electronic equipment is not domestic waste - in accordance with directive 2002/96/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL dated 27th January 2003 concerning used electrical and electronic appliances, it must be disposed of properly. At the end of its service life, take this unit for disposal at a designated public collection point.

Spent batteries are special waste!
Do not throw spent batteries into your domestic waste; take them to a collection point for spent batteries.

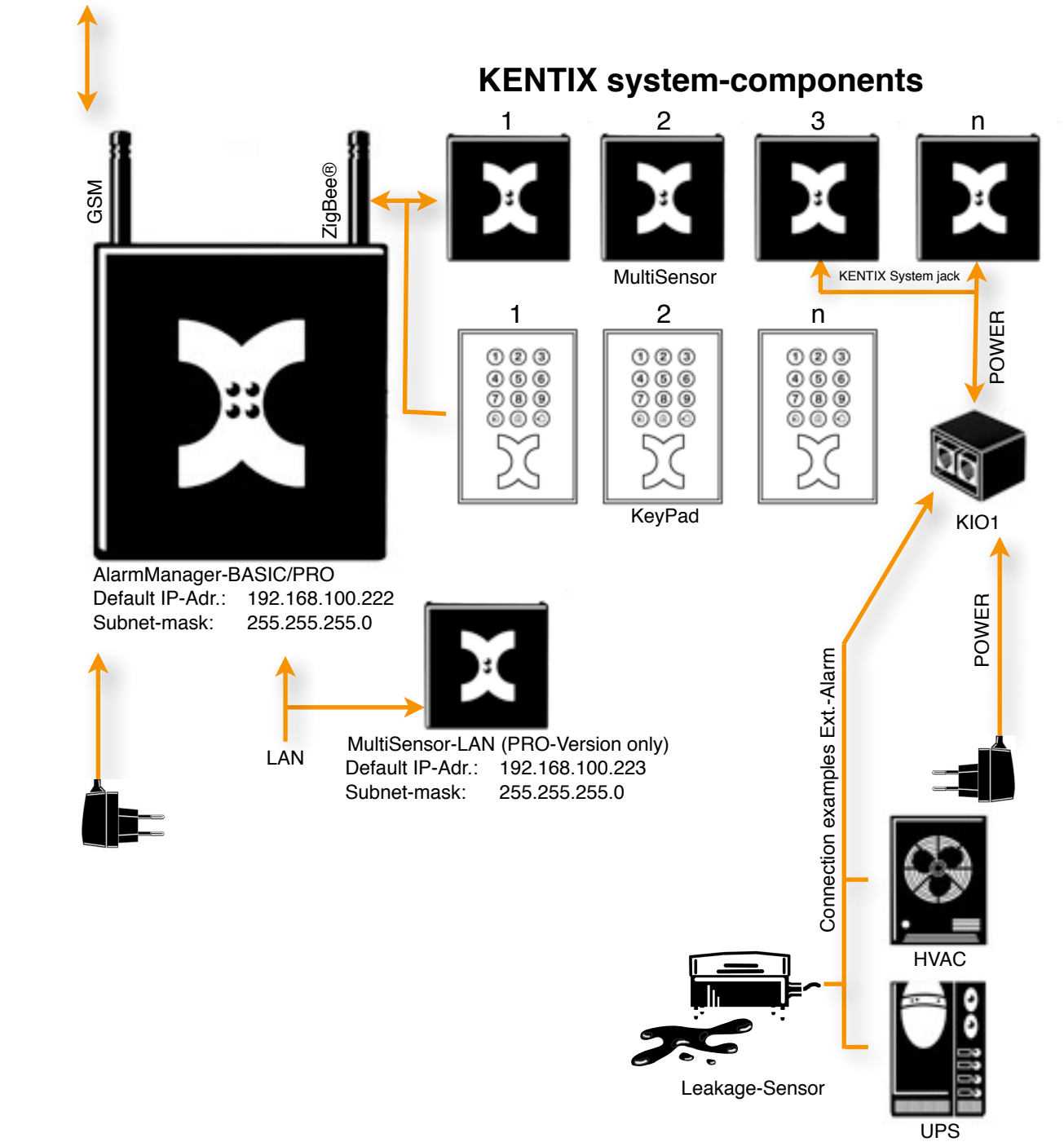
The products complies with applicable European standards and directives and is confirmed by the CE mark.
The CE conformity declaration is available on request.

3. Overview KENTIX System Topology



Mobile phone

- ✓ The AlarmManager is the central unit.
  With the **BASIC-Version** up to 10 MultiSensors and 3 KeyPad wall-mount keyboards can be connected. The **PRO-Version** supports up to 100 devices (MultiSensors-RF/-LAN/-RACK/-LAN-RF/-Door and KeyPads).
- ✓ The KENTIX components are communicating via radio (ZigBee ®) in the 2.4GHz ISM band.
  The MultiSensors and KeyPads are working in a mesh network and communicate with each other.
- ✓ Start each new project always with a CompleteSet. The Sets include everything you need for the plug'n play installation. Select the Set according to your project size.
- ✓ You can expand the CompleteSets with the extension parts and accessories at any time.



4. AlarmManager-BASIC/PRO

4.1. Login to the AlarmManager

The PC-Client Kentix ControlCenter displays a Login-screen after starting the Application.
To log in, enter IP-Address and user data for your AlarmManager.

With the first commissioning, use the default IP-Address **192.168.100.222**
and the user data **admin/password** to log in.

NOTE
Only users with the permission „Administrator“ are allowed to make changes to the AlarmManager.
For users without the admin permission, only the tab pages „Dashboard - Logbook - Chart“ are available for viewing purposes.

4.2. Changing IP-Settings

Connection with PC: Connect the LAN interface of the AlarmManager via the supplied LAN cable to your PC. Note that a direct connection needs the supplied crossover adapter. Set the IP address of your PC for example to "192.168.100.123".

Note that changes in the IP-Settings get active directly after applying.
A wrong configuration can set the AlarmManager to a state where it is only accessible via direct connection.

IMPORTANT!
If you forgot the IP-address of the AlarmManager connect it with the crossover cable directly to the LAN port of your PC. Open the Network settings in the ControlCenter to show the current IP address. You may have to disable the firewall and also additional network cards of the PC.

4.3. Default settings / Factory defaults

Default IP-address:	192.168.100.222
Subnet mask:	255.255.255.0
User:	admin
Password:	password

Setup IP-Address: Change IP settings in the Kentix Control center opening „System“ -> „Settings“ -> „Network...“ in the menu.

Reset to factory defaults
To reset the AlarmManager to factory defaults, press the RESET Button on the back of the board and hold it down for 5 seconds. The device will be set to factory defaults and restarts. After about 30 seconds the AlarmManager can be accessed again via the default settings.
(NOTE: This function is valid for all AlarmManager-BASIC/PRO from 01/2014 on)

4.4. Configuration in 8 steps

No	Step	Comment
	Startup	
1	Connect the AlarmManager via LAN cable to the PC. The yellow LED on the LAN connector indicates a connection. Start the Kentix ControlCenter and connect with the default IP-address 192.168.100.222 to the AlarmManager.	With 1:1 LAN connection via network cable use crossover-adapter. Make sure that your PC is in the same network.
	Menu item „System - Settings“	
2	To change the network configuration open the menu item „Network“.	
3	Configuration the notification ways, use the menu item „E-Mail, SNMP & GSM“. Enter the mobile data according to the used SIM card. When a PIN is used for the SIM card, first „Save“ your configuration with the correct PIN before inserting the SIM card into the AlarmManager to avoid a lock of the card.	You can disable the PIN of your SIM card with a mobile phone. The entries in the software will then be ignored.
	Register tab „User accounts“	
4	In the first user account enter your name, e-mail-address and mobile number in international notation (+49 ...). Assign an user password and a 4-digit Operator-PIN. The first user account is always the "Administrator Account" and can not be deleted.	With a right mouse click you can test your mobile settings.
5	Using a KeyPad the PIN also applies to the operation via the keyboard. Note that the KeyPad allows only 4-digit passwords with the digits 1-9. When using an RFID card enter the RFID card number.	In the operation of the AlarmManager via your mobile phone the transmitted phone number will be check in addition to the password.
	Register tab „Sensor-Devices“	
6	Press the "+" key to teach-in new devices such as MultiSensor or KeyPad. BASIC: A new window opens and all accessible devices appear as soon as you press the „learn button“ at the device. After all devices are available in the list press the "Save" button. PRO: A windows opens where you can select RF- or LAN-components. Selecting RF starts the scanning process as described in the BASIC-Version. LAN-components have to be configured by entering the correct IP-address in the „device address“-field.	When you run the teach-in process for RF-devices a closed wireless network is created, similar to an encrypted wireless PC network. Make sure that the devices are located in radio range close to the AlarmManager / MultiSensor-LAN-RF.
7	In the list of devices you can already test functionality of the device. With a "right click" you get a choice of test functions. Let the selected MultiSensor LED flash and give the device a name.	Via the test functions you can switch also the external outputs on or off.
8	Finally change the alarm settings and alarm assignments (Armed-Active / Always-Active) according to your needs.	**Armed-Active**: Alarms are only triggered, when the system is in armed state. **Always-Active**: Alarms are always triggered, independent of the armed/ disarmed state of the system
	Saving the configuration **IMPORTANT!** Changes made in the ControlCenter only become active when being saved into the AlarmManager.	

4.5. Visual and acoustic signaling

AlarmManager

LED-POWER:	Lights after connection to the power supply
LED-GSM:	***Flashes:*** *Booked into GSM network*, ready for communication.
	Constant: No GSM network connection, no communication possible
LED-ARMED:	Lights if AlarmManager is armed
LED-ALARM:	Lights if an alarm is triggered

MultiSensor-RF / -LAN / -LAN-RF

LED-GREEN:	Lights if MultiSensor is powered and function is OK (not in stealth mode)
	Lights after power lost for around 3 minutes.
LED-RED:	***Constant:*** MultiSensor is armed
	Flashes: An alarm was triggered

MultiSensor-RF / -LAN / -LAN-RF and AlarmManager

BUZZER:	***Alternating:*** Arm delay is running.
	Delay is depending on configured time in the ControlCenter.
	Constant of 1 Second: System has been disarmed.
	Constant of 3 Seconds: Arming was not executed - alarms are existing. Please check external alarm inputs on AlarmManager or MultiSensor.

MultiSensor-Door

Normal operation mode:

LED-RED:	blinking 1x per routine message in case of alarm
LED-GREEN:	OFF
BUZZER:	1x short in case of alarm
	1x short when pressing the teach-in button (Sensor identification)

Teach-In process:

LED-RED:	OFF
LED-GRÜN:	long blinking: Teach-In process started
	ON: Teach-In process completed
BUZZER:	1x short when pressing and holding down the teach-in button
	additionally 1x long after 5 seconds

MultiSensor-RACK-MINI

Normal operation mode:

LED-RED:	short blinking: armed
	OFF: disarmed
	long blinking: alarm
LED-GREEN:	short blinking: disarmed
BUZZER:	1x short in case of alarm
	1x short when pressing the teach-in button (Sensor identification)

Teach-In process:

LED-RED:	OFF
LED-GREEN:	long blinking: Teach-In process started
	ON: Teach-In process completed
BUZZER:	1x short when pressing and holding down the teach-in button
	additionally 1x long after 5 seconds

4.6. Alarm zones

MultiSensors connected to the AlarmManager and also the inputs of Kentix IO-modules can be assigned to different alarm zones. With this option a separation into different areas can be realized. Every zone can be switched to armed or disarmed state and send alarms independent from the other alarm zones.
For the configuration, add the desired number of zones in the alarm zones section of the base settings and enter a name for every zone. After this assign the sensors to the desired zone.

IMPORTANT!
Also with multiple sensors in one zone an alarm of the type „Armed-Active“ can only be reported once for every zone. After alarming the alarm repetition is activated. If a continuous alarming is desired, the automatic quitting of alarms can be activated in the advanced settings.
The Quitting (by Software/Web-Interface/SMS/App) of alarms always considers all alarms regardless of the assigned alarm zone.

4.7. Quitting Alarms

When an Armed-Active or Always-Active alarm is triggered at the AlarmManager, it has to be quit after the cause has been fixed. This can be done by the Web-Interface, the ControlCenter, via SMS or with the App.

IMPORTANT!
Only when an alarm has been quit, it can be triggered again.
Other following alarms with a different cause from the sensors are still reported without acknowledgement.

The last triggered alarm will be resent every time the set up time for the alarm repetition runs up. With a value of 0 this repetition can be suppressed.
If an existing alarm is quit without the cause being fixed, the AlarmManager stops the alarm repetition. The alarm state stays active.

Additionally the AlarmManager tries for every 6 hours to quit existing alarms. When the cause has been fixed or is no longer present, alarming can be stopped this way, but gives the possibility to be re-triggered again.

4.8. User accounts

In the user accounts the setup of the permissions and the alarming is done.
Only if the required user data is entered, a user can control the AlarmManager or request information.
The list describes the user data required for AlarmManager interaction:

Input field	Description
User Password	Login to the ControlCenter, the Web-Interface and the Kentix App
PIN-Code	Remote control by SMS and switching via KeyPad
E-Mail Address	Destination address for the alarming
Phone number	Destination phone number for the alarming. Also used as authentication for the SMS controlling.
Assigned alarm zones	The user can only switch zones assigned to his account. To switch all zones together, every zone has to be assigned to the user.
Permissions	Assign single permissions for the user by activating the according option.

IMPORTANT!
Only users with the permission „Administrator“ are allowed to make changes to the AlarmManager.
For users without the admin permission, only the tab pages „Dashboard - Logbook - Chart“ are available for viewing purposes.
A login on the web interface is also not permitted.

4.9. SMS commands for remote control of AlarmManager

The AlarmManager reports not only all the alarms via SMS, it can be also remotely controlled via simple SMS commands from a mobile phone. This brings the big advantage of having the central alarm system in your pocket and remotely setting the system to the desired states.
The AlarmManager can be armed or disarmed and alarms can be acknowledged remotely. So you can decide if it is necessary to intervene on the ground at any time by using the SMS information and status inquiry.

Important notes for remote control of the AlarmManagers via SMS

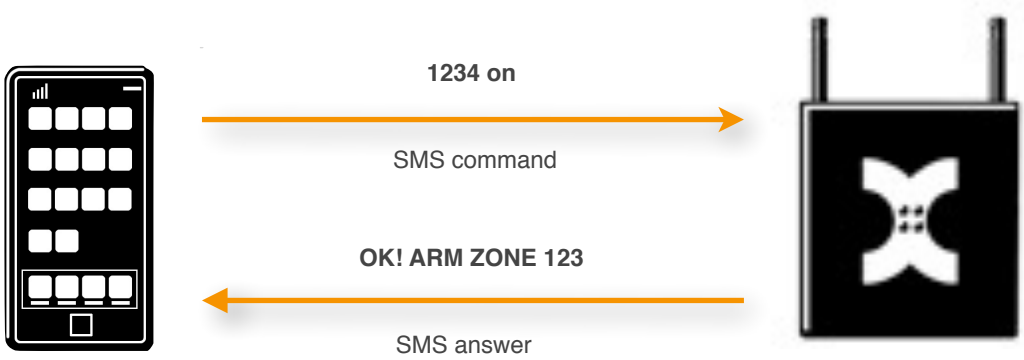
- Upper- and lower-case can be used.
- Between „Operator-PIN“ and „COMMAND“ is always a space.
- The „Operator-PIN“ can have 4-8 alphanumerical characters. Setup the PIN with the ControlCenter.
- The AlarmManager is confirming each command SMS with an SMS back to the sender.
- Command SMS with the wrong phone number or password will not be confirmed for security reasons.

SMS control commands

SMS command	Description	Example	Confirmation
{PIN} ON	Arming of the AlarmManagers. All zones will be armed..	1234 on	OK! ARM All Zones
{PIN} ON{ZONE}	Arming of the selected zone.	1234 on1	OK! ARM ZONE 1
{PIN} OFF	Disarming of all zones.	1234 off	OK! DISARM All Zones
{PIN} QUIT	Acknowledge of all pending alarms. The alarm repetition is terminated. The AlarmManager can be set to arm state again.	1234 quit	OK! ALARM QUIT
{PIN} STATE	The AlarmManager sends the actual system state.	1234 state	OK! ARMED/DISARMED/ ALARM
{PIN} MSTATE1-n	The AlarmManager sends the actual system state and values of a MultiSensor. Enter the number of the MultiSensor (1-100) directly after the command „MSTATE“. The response contains the name of the MultiSensor.	1234 mstate1	OK! SENSORNAME: TEMP=20C REL-HUM=25% DEW-POINT=3C MOTION=15% EXT-IN=0 SABOTAGE=0 POWER=OK

NOTE!
When a sensor sends an alarm, the SMS contains the number of the sensor to send a mstate request.

Example: Arm-disarming of the AlarmManager via SMS command



4.10.Settings - AlarmManager-BASIC and -PRO

General Settings

System name
Enter the name of the system and choose the active state.

Regional settings
This settings allow to choose the timezone and the temperature unit.

Security
Webinterface always needs authentication. This prevents the system state to be accessed by unauthorized users.

Backup folder
The path to the backup files of the AlarmManager‘s configuration is set here.

Alarm behavior

Alarm functions
Set the behavior of the AlarmManager for pending alarms here. The arming delay makes it possible to set a timespan between arming and alarm triggering.

Signaling
The acoustic feedback (buzzers of AlarmManager and MultiSensors) and the feedback of the LEDs can be activated or deactivated as needed, except the CO-alarming. A CO-alarm always triggers all buzzers for the specified buzzer time.

E-Mail, SNMP & GSM

E-Mail

For e-mail notifications an account can be configured with or without user credentials. Depending on the E-mail server, setting an encryption method might be necessary. When choosing the encryption mode (STARTTLS / SSL) the required port will be set to the according default port. The port can be changed if needed.
Enter the IP-address of the e-mail server and the sender address here.
It is possible to resolve DNS addresses to the according ip by hitting the button „DNS -> IP“.
Via the Kentix-Check-Button a test e-mail with the entered configuration can be sent.

NOTE!
The test e-mail is sent to the e-mail-address of the first user. In case of an error please check, whether an e-mail-address has already been configured for this user. Also take care of possible restrictions (routing/ firewalls) in your network and synchronize data like encryption and communication port with the responsible persons.

SNMP - Monitoring
The AlarmManager supports full SNMP-functionality, therefore alarms can be sent as traps. Additionally the AlarmManager can be configured for requests via network monitoring systems. For this purpose you can download a MIB (Management Information Base) for the SNMP host.

GSM settings
Enter the mobile number and PIN of the SIM card.

Network monitoring

Configure up to 100 network devices (BASIC: 3 devices). Network services of each device, which should be monitored, can be assigned (ICMP or TCP ports).
The AlarmManager periodically checks, if the specified services on the servers are available.
The request interval can be set between 60 and 999 seconds. Note that the alarm will be triggered after 3 failed attempts.
By pressing the Kentix-Check-Button the connection to the selected service can be tested. A total of 50 services can be configured (BASIC: 3 services).

The AlarmManager (PRO only) can receive incoming SNMP-Traps as alarms. These will be sent to the users which are configured to be notified of always-active alarms. Therefore OIDs can be assigned to each network device. The retrigger time specifies the period of time after which the alarm can trigger again.

4.11.Settings - AlarmManager-PRO only

Network Cameras

The AlarmManager-PRO can control cameras in its network to start the recording of a video or picture (depends on the camera features). Add the IP cameras to the according zone and enter the connection data of the camera. The command to start a recording can be found in the cameras manual.
Enter the command as an URL without the IP-address in the HTTP command field (e.g. „/command=...“).
For Mobotix and AXIS cameras predefined commands can be selected via the pulldown menu.
Check the camera setup by pressing the Kentix-Check-Button.

I/O Modules

The AlarmManager-PRO can be extended with up to 6 additional digital input and outputs modules (KIO7052 or KIO7053).
With these it is possible to monitor up to 96 more alarms e.g. air-conditioning-systems, extinguishing systems, UPSs or other alarm detection systems.
For configuration regard the instructions in the „Enhancements“ section and the corresponding data sheets.

IP alarm forwarding (VdS 2465)

It is possible to connect the AlarmManager-PRO to a control center, which communicates over TCP connections using the VdS 2465 protocol.

SMS alarm forwarding

It is possible to connect the AlarmManager-PRO to a control center, which can receive alarms via SMS.

4.12.SMS gateway function

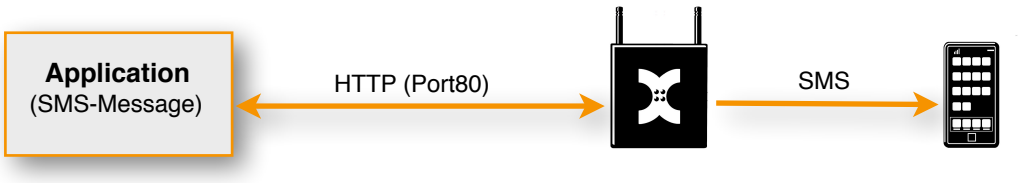
External applications such as Network monitoring systems can send via the AlarmManager-PRO SMS text messages via the integrated modem. Communication is carried out via the build-in web server and the HTTP protocol. Following HTTP call is necessary:

Replace the variables with your data. You can send a test SMS from any web-browser.

HTTP command structure:

http://**AlarmManager-IP**/sendmsg?user=**myUser**&password=**myPassword**&to=***012341234567&***text=**myText**

AlarmManager-IP	IP address of the AlarmManager (Default 192.168.100.222)
myUser	Username (User with access right to send SMS messages)
myPassword	Password
0049...	Mobile number in national or international notation To use the character „+“ in the URL please replace it with „%2B“ Exp.: „+49“ replaced with „%2B49“
myText	Text-message with up to 160 characters (Up to 320 characters possible. In this case 2 Messages will be sent)
HTTP return code:	200 when SMS sending was successful 300 when SMS sending was unsuccessful



4.13.MIB for SNMP-Systems

For the AlarmManager-PRO a MIB (Management Information Base) is available, which describes the information that can be requested or modified by a SNMP-System (z.B. PRTG, OpManager or WhatsUp Gold). The single values in it are identified and requested via the OID (Object Identifier). Every value has his own specific OID.

The following list shows the structure of the AlarmManager-MIB and gives an overview of the values that can be requested:

- state
  - alarm1
  - alarm2
  - ...
- multisensors
  - multisensor01
    - sensorname01
    - temperature01
    - humidity01
    - dewpoint01
    - co01
    - motion01
    - digitalin101
    - digitalin201
    - digitalout201
    - comError01
  - ...
  - multisensor100
- ext-module
  - modul01port01
    - portname
    - portstate
  - ...
  - modul06port16
- server-monitoring
  - server01
    - servername01
    - ...
    - serverstate01
  - ...
  - server20
- alarm-zones
  - alarmzone01
    - alarmzonename01
    - alarmzonestate01
    - alarmzonealarm101
  - ...
  - alarmzone30

state - System state:
Query branch of the AlarmManagers general system state. Delivers the actual state as shown in the Web-Interface or the Dashboard of the ControlCenter (e.g. Arm/Disarm, Alarm1 (Armed-Active), Alarm2 (Always-Active), Fire, Server state,...).

multisensors - MultiSensors RF/LAN:
Query branch for the values of all connected MultiSensors (the branch shows all 100 maximum possible Sensors).
All values are displayed as integers, whereas temperature and dew point are increased by a factor of 10, to consider one more decimal place. This has to be taken into consideration in the requesting SNMP-System.

ext-module - Module for external alarms:
Query branch for the In- and Outputs of the external modules KIO7052/3.
Shows the configured name and the actual alarm state for every In- and Output respectively at Outputs the switched state.

server-monitoring - State of the monitored Servers
Query branch of the configured servers to be monitored. Shows the configured name, IP-address and port of the service to be monitored, the response time in milliseconds and the alarm state (0-OK, 1-not reachable) for every server.

Examples for the OID:
AlarmManager OID: .1.3.6.1.4.1.37954.1
Query branch „state“: .1.3.6.1.4.1.37954.1.1
Object „alarm1“: .1.3.6.1.4.1.37954.1.1.4.0 - shows the actual state for alarm 1 (armed-active)

Query branch multisensors: .1.3.6.1.4.1.37954.1.2
Lower branch multisensor01: .1.3.6.1.4.1.37954.1.2.1
Objekt „temperature01“: .1.3.6.1.4.1.37954.1.2.1.2.0 - shows actual temperature value of the 1st MultiSensor

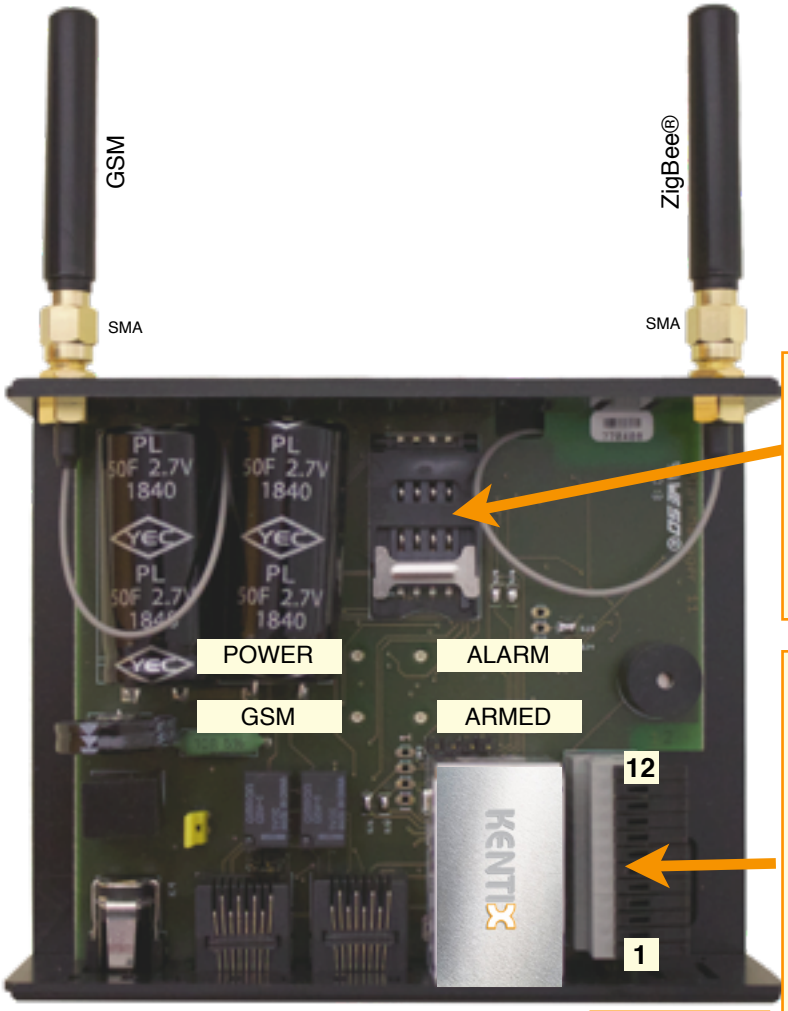
4.14.Execution of Firmware Updates

We are always looking to include innovations of development in our products and to ensure their faultless operation. Therefor we release updates in regular intervals.
To execute an update pay attention to the following steps.

No	Step	Comment
1	Download the actual version of the Kentix ControlCenter from the Kentix Website and install it. Find the software in the „Info & Support“ section under „Software & Manuals“.	The software works for the BASIC- and PRO-Version of the AlarmManager and includes all necessary update components.
2	Start the software and connect to your AlarmManager by entering the IP-address and user date and clicking „Connect“.	A popup-window appears indicating an existing firmware update.
3	Start the update process by selecting „Yes“ in the popup-window. Before the update the AlarmManager starts a download of the actual configuration and loads it back into the device after the updating is completed.	Running a firmware update will overwrite all saved data (except IP-settings) on the AlarmManager. If the update process fails, restart it by pressing the „Login“ button again.
4	When the update is finished, login to the AlarmManager with the default login user data (admin/password). Change the user data of the first user back to your desired settings.	After Saving, the AlarmManager is on the newest firmware state with your personal configured data.

4.15.Connections - AlarmManager-BASIC/PRO

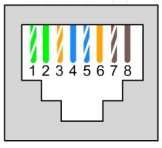
According to the two types of installation "Plug'n Play" or "wired connection" you will find all connections of the AlarmManager in the following overview. With the "Plug'n Play" installation you only need to open the case to insert the SIM card. Pull the sides of the case a bit apart. The cover slips right out of the groove and can easily be lifted off. You can insert the fixed connection cable from the rear of the chassis. Break out the push-out marking from the inside with a screwdriver.
The terminal is designed for wire sizes up to 0.8 mm ².



SIM mobile card.
Insert the card with the contacts to the bottom (perforation down right) and close the SIM holder.

IMPORTANT! Only insert the SIM card after the initial configuration with a first PIN has been uploaded.

Internal terminal 12 pole:
12 - GND
11 - Relay ALARM Armed-Active (NC)
10 - Relay ALARM Armed-Active (NO)
9 - Relay ALARM Armed-Active (COM)
8 - Relay ALARM Always-Active (NC)
7 - Relay ALARM Always-Active (NO)
6 - Relay ALARM Always-Active (COM)
5 - Power supply 10-32VDC (+/-)
4 - Power supply 10-32VDC (+/-)
3 - Ext. alarm input
2 - Ext. arm-disarm
1 - Internal system voltage (5V)



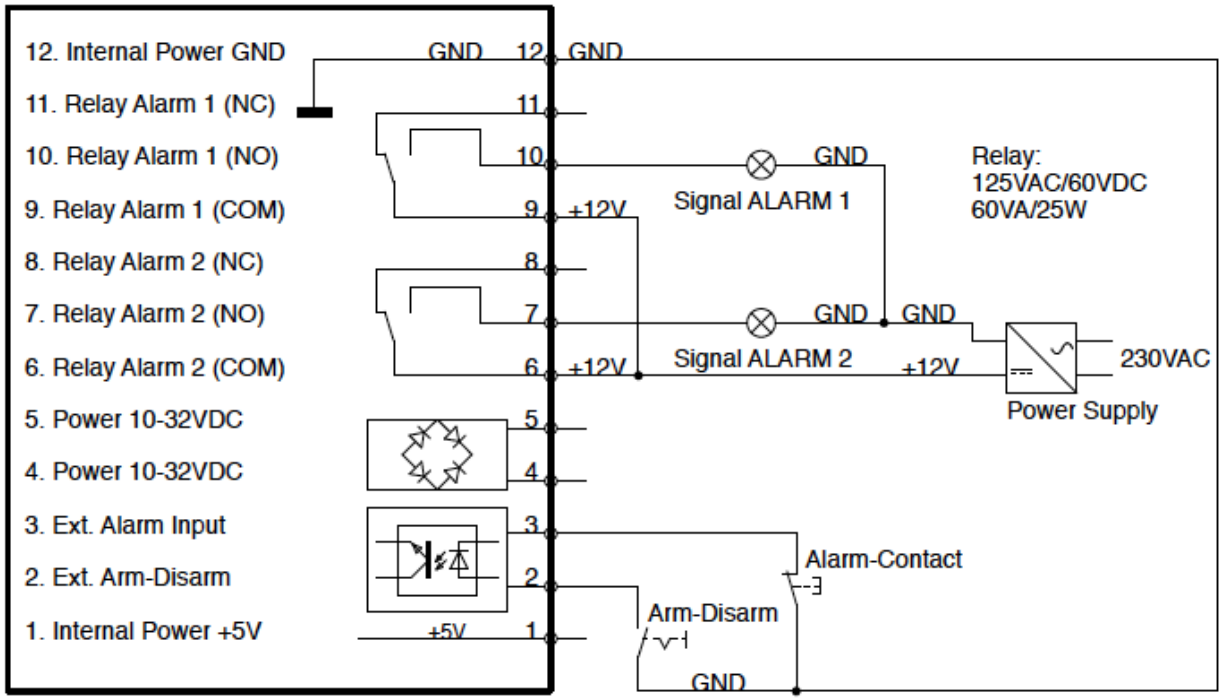
Kentix system jack

1 - GND
2 - DO1-LED
3 - DO2-LED
4 - Power supply 10-32VDC (+/-)
5 - Power supply 10-32VDC (+/-)
6 - Ext. alarm input (External dry contact, no/nc)
7 - Ext. arm-disarm (External dry contact, no/nc)
8 - 5V internal system voltage

External I/Os AlarmManager-BASIC/PRO

Examples of the external circuit of the AlarmManager. Shows the internal 12-pin terminal of the AlarmManager. The internal circuit of inputs and outputs is shown schematically for better understanding. The logic of the alarm inputs can be rotated in the ControlCenter.

Example: Power supply via the external plug supply, just the alarm-inputs are connected.



Description - Relay-Contacts:
Alarm 1 : Armed-Active
Alarm 2 : Always-Active

4.16.License Management and upgrade

In contrast to the AlarmManager-BASIC, the PRO-version contains additional useful features like e.g. connecting network-enabled MultiSensors or adding IO-modules.

Having the same technical design, there is the possibility to upgrade an AlarmManager-BASIC via a license key to the PRO-Version with the Kentix ControlCenter, if required.

A valid license key can be purchased via our sales department (www.kentix.com).

5. MultiSensors

The MultiSensor-RF (ZigBee radio) and MultiSensor-LAN (network) mainly differ in the way of communication. Additionally the MultiSensor-LAN offers the possibility to operate without an AlarmManager stand-alone. Both types of the MultiSensor offer a wide range of integrated sensors and so are the ideal device to completely monitor critical infrastructures.

5.1. Mounting instructions for MultiSensor-RF / -LAN / -LAN-RF

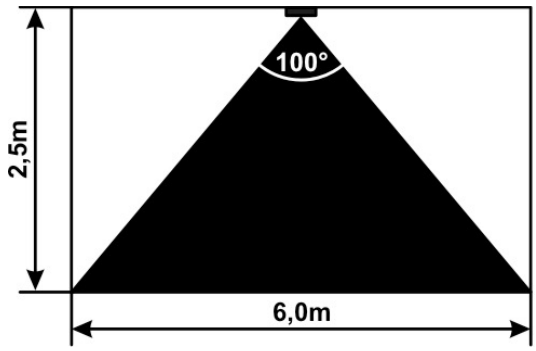
The MultiSensor is equipped with various individual sensors. To get an optimal sensitivity and function of the sensors, please note the following installation instructions.

Note the following instructions:

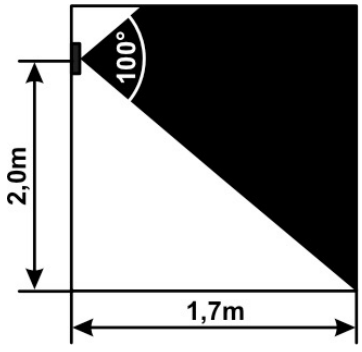
- Do not install close to heaters or direct heat.
- Avoid detection of moving objects such as fans, plants, trees, flags, etc.
- Don´t cover the Sensor. The PIR-Sensor needs inter-visibility for detection.

5.2. Coverage of the integrated PIR movement detector

The range of the MultiSensor is depending on the configured sensitivity about 8m. You get the best results, when objects/persons move past the MultiSensor.



ceiling suspension



wall fastening

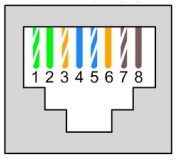
5.3. MultiSensor-RF

The MultiSensor-RF is configured by the ControlCenter. Updating the device is neither possible nor necessary.

5.3.1. Kentix system jack - MultiSensor-RF

Via the Kentix system jack, located in the front of the MultiSensor-RF, system components such as leakage detectors, door contacts, acoustic signals or alarms of USPs or climate devices can be connected. The MultiSensor-RF is powered via the Kentix system jack.

To connect external devices or alarm in- or outputs, three connector modules are available:
1) Power-Adapter KIO 1: Power supply, 2 digital inputs
2) Power-Adapter KIO 2: Power supply only
3) Power-Adapter KIO 3: Power supply, 2 digital inputs and 2 relay outputs



KENTIX system jack

1 - Internal system voltage (GND)
2 - Alarm output 1 (Open Collector 100mA)
3 - Alarm output 2 (Open Collector 100mA)
4 - Power supply 10-32VDC (+/-)
5 - Power supply 10-32VDC (+/-)
6 - Alarm input 1 (External dry contact, no/nc)
7 - Alarm input 2 (External dry contact, no/nc)
8 - Internal system voltage (5V)

5.3.2. Adding a MultiSensor-RF

1. For adding a MultiSensor-RF to the AlarmManagers configuration start the teach-in process in the Kentix ControlCenter and press the „learn button“ for 1 second. The button can be accessed via the hole in the cases back.
2. The sensor should appear in the list after approx. 15-20 seconds and is configured automatically.
3. The teach-in process is completed when the sensor is marked in the list with a green checkmark.
4. Click on Apply for completion to add the MultiSensor to the devices list.

5.4. MultiSensor-LAN

In contrast to the MultiSensor-RF with radio interface the MultiSensor-LAN can also be used stand-alone without an AlarmManager. For configuration in stand-alone operation a web server is integrated, which allows you to configure the device via LAN and a web browser. With the SNMP interface, an integration in network management systems is possible.

Connection via PC: Connect the LAN jack of the MultiSensor-LAN with your network and your PC using a LAN cable. Please note that you have to use a Cross-Over network cable for a direct connection. Set the IP address of your PC to e.g. „192.168.100.123“.

5.4.1. Default settings / Factory defaults

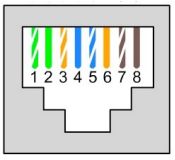
Voltage supply:	PoE (Power over Ethernet). Change to external power supply possible.
Default IP-address:	192.168.100.223
Subnet mask:	255.255.255.0
User:	admin
Password:	password

Important! Reset to factory defaults
If you forgot IP-address or the login information of the MultiSensor-LAN, press the RESET button at the back of the sensor. The device will reset to factory defaults and reboot. After 30 seconds the MultiSensor can be accessed with the default IP-address and default user data.

5.4.2. Kentix system jack - MultiSensor-LAN

Via the Kentix system jack, located in the front of the MultiSensor-LAN, system components such as leakage detectors, door contacts, acoustic signals or alarms of USPs or climate devices can be connected. The MultiSensor-LAN is powered via the Kentix system jack.

To connect external devices or alarm in- or outputs, two connector modules are available:
1) Power-Adapter KIO 1: Power supply, 2 digital inputs
2) Power-Adapter KIO 2: Only power supply
3) Power-Adapter KIO 3: Power supply, 2 digital inputs and 2 relay outputs



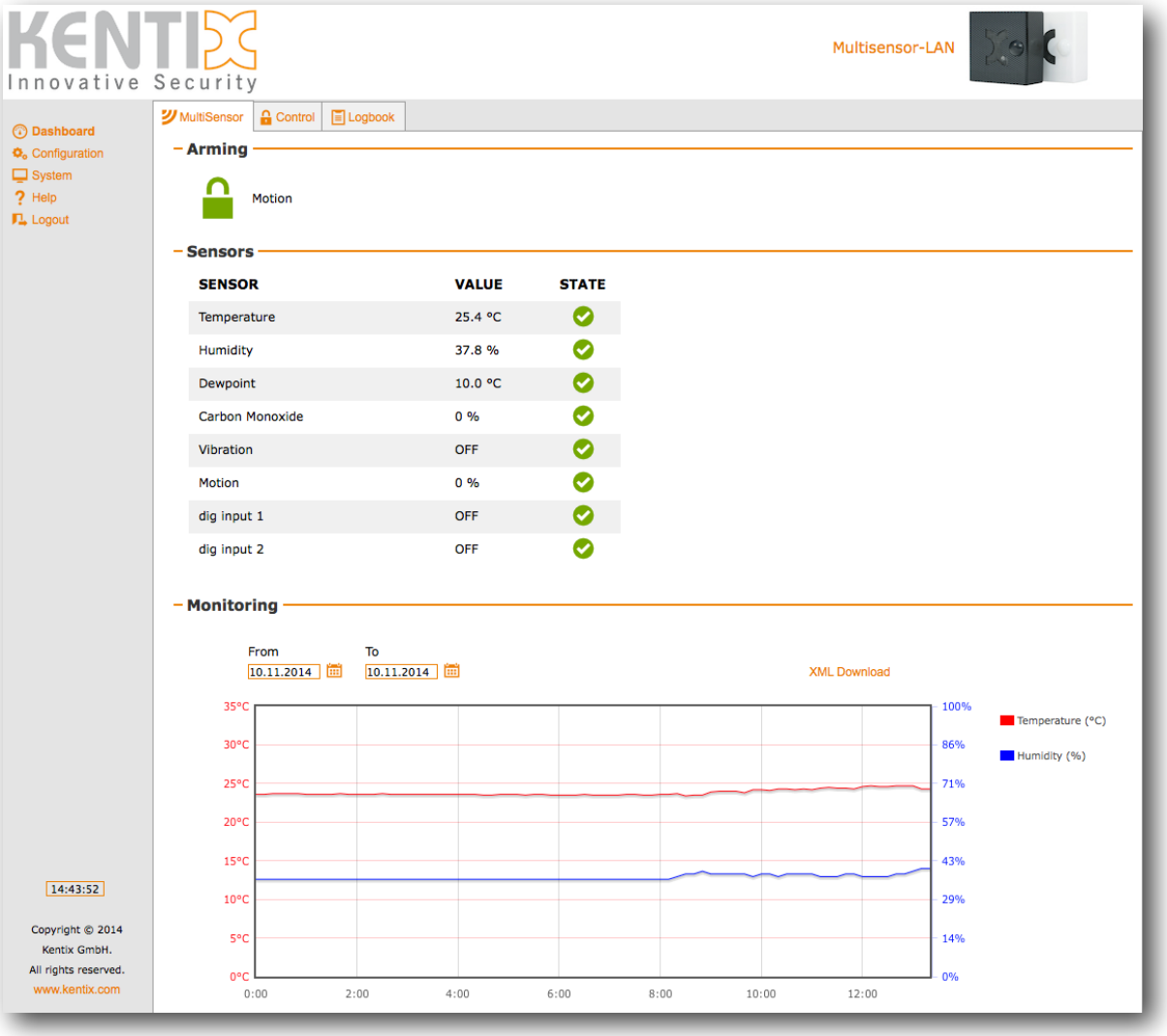
KENTIX system jack

1 - Internal system voltage (GND)
2 - Alarm output 1 (Open Collector 100mA)
3 - Alarm output 2 (Open Collector 100mA)
4 - Power supply 10-32VDC (+/-)
5 - Power supply 10-32VDC (+/-)
6 - Alarm input 1 (External dry contact, no/nc)
7 - Alarm input 2 (External dry contact, no/nc)
8 - Internal system voltage (5V)

5.4.3. Software function MultiSensor-LAN

In the following, the stand-alone functionality of the integrated web server is described. For the described functionality no AlarmManager is required. When operating the MultiSensor-LAN with the AlarmManager-PRO, the AlarmManager controls the configuration and monitoring functions.

Dashboard



MultiSensor values and status:
Display of the sensor measurements and alarm conditions. This display will be actualized all 5 seconds.

- No underflow or exceeding of the measured values

- There is an underflow or exceeding of the measure value, an alarm was triggered

- The motion detection is disarmed (only visible after login)

- The motion detection is armed (only visible after login)

NOTE!
The Sensor records a value for temperature and humidity every 10 minutes. Additionally the values in an alert case are also recorded.

Navigation

Dashboard	- Starting page with measurement table, control of the 2nd digital output, logbook
Login	- User login
Configuration	- Basic configuration, MultiSensor (Sensor- and alarm settings), Users (Login,E-Mail)
System	- System information (software version), test functions, configuration management, firmware update, device reset - logbook
Help	- Help and support information
Logout	- User logout

5.4.4. Configuration - Basic configuration

Device name
Configuration of the device name, this name can be chosen freely.

Language
Select the displayed language of the MultiSensor‘s Website.
You can choose between german and english language.

Temperature unit
Switches the temperature evaluation and display of the MultiSensor-LAN between celsius and fahrenheit.

IP address / network mask / gateway / DHCP / MAC-address
Network configuration of the MultiSensor. If DHCP is enabled, the DHCP server should always assign the same IP address to the MultiSensor-LAN.
If you need the MAC address of the MultiSensor for your router or firewall settings, you will find it here.

DNS1/2 (Domain Name Server Addresses)
Enter the name server address. Depending on network configuration e.g. on use of an ADSL router it can be the gateway address.

Public DNS servers: 8.8.8.8 or 8.8.8.4

NTP1/2
Configuration of the time server (network time protocol). The NTP configuration is needed if you use the time-controlled arming and disarming.

Public NTP servers: 0.de.pool.ntp.org or 1.de.pool.ntp.org

IP-address and activation of AlarmManager communication
Activate the communication with the Kentix AlarmManager-PRO here. Enter the IP-address of the AlarmManager and activate the checkbox.

Der AlarmManager-PRO takes control of the configuration of the MultiSensors alarm settings. The local alarm- / threshold values are then inactive.

FTP server activation
The integrated FTP server can be activated or deactivated. The FTP access will be needed for a software update of devices with an old firmware version (< 4.00.00). Look up in the chapter „software update“ for it.

When changing the network settings, the MultiSensor automatically performs a reset.

E-Mail
If the MultiSensor should be able to send e-mails in the case of alarm to a configured user, it is necessary to set an e-mail server (SMTP or ESMTP). When you have set a DNS server, which is configured in the DNS settings, you can use the DNS name of the e-mail server here. With using ESMTP you can here enter the e-mail access data, which you can obtain from your e-mail provider. Depending on the E-mail server, a encryption method might be necessary. When choosing an encryption mode (STARTTLS / SSL) the required port will be set to the default port. The port can be changed to another one when needed.
Pay attention that many mail servers need an existing sender address to send an e-mail correctly.
In the subject of the e-mail the corresponding alarm text can be found and in the mail text all measurements from the MultiSensor are included.

E-Mail Signature
Enter a signature, which is sent with every alarm E-Mail. The signature is limited to 300 signs length.

SNMP settings
Configuration of the Simple Network Management Protocols. The MultiSensor-LAN is able to send alarm messages as SNMP-Traps. Enter **both** SNMP host addresses for this. Further the sensor can be prompted or partially configured via SNMP. The functions which are available for the SNMP communication are specified in the supplied MIB (Management Information Base). It is available on the integrated FTP server or as download from the Kentix website.

5.4.5. Configuration - MultiSensor (Sensor- and alarm settings)

In the following settings you can set the limit and action values for the alerting.
When an alarm is triggered, an e-mail will be sent to the configured persons and the internal buzzer is activated.

Sensor-Temperature, Humidity, Dew-point
Set the alarm limit values. Alarm will be triggered when the measurements undershot or exceeded the limits. The temperature hysteresis is 1°C, humidity hysteresis 1%.
The dew-point is calculated with the current temperature and the relative humidity from the sensor.
If the room temperature approximates to the difference of the set dew-point hysteresis (2°C default) an alarm will be triggered. Systems and devices can lead to condensation, when the dew point temperature approximates the room temperature.

Sensor-Carbon Monoxide
Alarm settings for the Carbon Monoxide. The sensitivity can be set from 0% to 100% and will be triggered by exceeding. CO is measured from about 10ppm. There is no exact measurement of the CO content. The measurement is construed to the highest sensitivity and can be changed slightly in the adjustment.
Carbon Monoxide concentrations like they emerge in fires are detected even at 100% setting.
10%: Minimal concentration of around 10-50ppm lead to an alarm trigger.
100%: Concentrations of 200-400ppm lead to an alarm trigger.

Sensor-Motion
Limit value for the integrated PIR (passive infra-rot) motion detection. It is triggered when exceeded. Objects which have a temperature difference of about 4°C to the environment temperature and which are bigger than 250x400mm will be detected. For a safe detection of persons, the value should be in the range of 30-50%. The detection range is about 100°.

Sensor-Vibration
Alarm settings for the sensitivity of the internal vibration sensor. The sensitivity can be adjusted in 3 levels. If necessary the vibration sensor can also be completely turned of.

NOTE!
The vibration sensor in the MultiSensor is first available in devices delivered in 01/2014 or later.

Arm-Disarm time
Switching time for the time-controlled arming and disarming from the integrated motion detection.
To use it, a time server (NTP) must be set in the network settings.

Ext. alarm input 1/2
The MultiSensor has two configureable alarm inputs. At this alarm inputs external signaling devices can be plugged (e.g leakage sensors, door contacts or malfunction messages from external devices). The trigger is set by a potential free contact (opener). The trigger logic can be set to HI or LOW.

Ext. alarm output
Label for the switching output (output 2). With this output external devices or signals can be switched. It is controlled via SNMP, the Web-Interface or the Kentix-App. Pay attention to the electrical connection conditions in the manuals.

Alarm buzzer time
Time in seconds how long the internal buzzer will sound after an alarm.

Alarm relay time
Time in seconds, how long the open collector output is set when an alarm is triggered. You can trigger with this output e.g. relays. Pay attention to the electrical connection conditions in the manuals.

Re-arming time
Set the time, when the sensor motion detection has to rearm, after a motion alarm is triggered.
The red alarm LED will be turned off after that time.

Alarm repeat
Set the time, when a triggered alarm shall be triggered.
The alarm will be sent to the entered e-mail-addresses until all values are in normal range again.
A value of 0 sets the alarm repeating to inactive.

5.4.6. Users

User accounts
You can set up to 5 user accounts with individual passwords. With the first user it is also possible to access the integrated FTP server. For the e-mail alerting, enter the addresses of the recipients.

5.4.7. System

System information
Shows the Firmware version number of the MultiSensor-LAN.
The actual firmware can be found on the Kentix Website in the section „Software & manuals“.

Test features
Test your E-Mail and SNMP settings via the two Buttons. The sending of E-Mails or traps is recorded in the logbook.

Backup configuration
For backup-purposes the actual configuration of the MultiSensor can be downloaded here.

Restore configuration
Loads a previously created backup into the device and restarts it. The settings of the backup are directly active afterwards.

Firmware-Update
Loads a firmware file (image.bin) into the MultiSensor and restarts it.

NOTE!
Pay attention to the relevant release notes of the downloaded update!

Restart
The MultiSensor-LAN can be restarted for testing or maintenance purposes. Note that the data recording is suspended for the duration of the restart.

5.4.8. Switch alarm output 2

In the section Dashboard -> Control you have the possibility to switch the 2nd alarm output of the MultiSensor-LAN. You can switch it for a specified period, by entering the time in seconds.
To switch the output permanently, enter a period of 0 seconds.

5.5. MultiSensor-Door / MultiSensor-RACK-MINI

The MultiSensor-Door / -RACK-MINI is designed for an efficient intrusion detection on doors or windows or for a specific environmental monitoring in a server rack.
Depending on its purpose there are two different models:

1. The battery-powered MultiSensor-Door for a flexible application on doors, windows or other moveable objects.
2. The USB-powered MultiSensor-RACK-Mini for a cabled maintenance-free application (no battery changes required) e.g. on server-racks.

The two models differ in the alarm signaling (see LED description below), but offer the same functionality. The MultiSensor-Door / -RACK-MINI is configured via the ControlCenter. Updating the device is not necessary / possible.

Figure 1: MultiSensor-Door

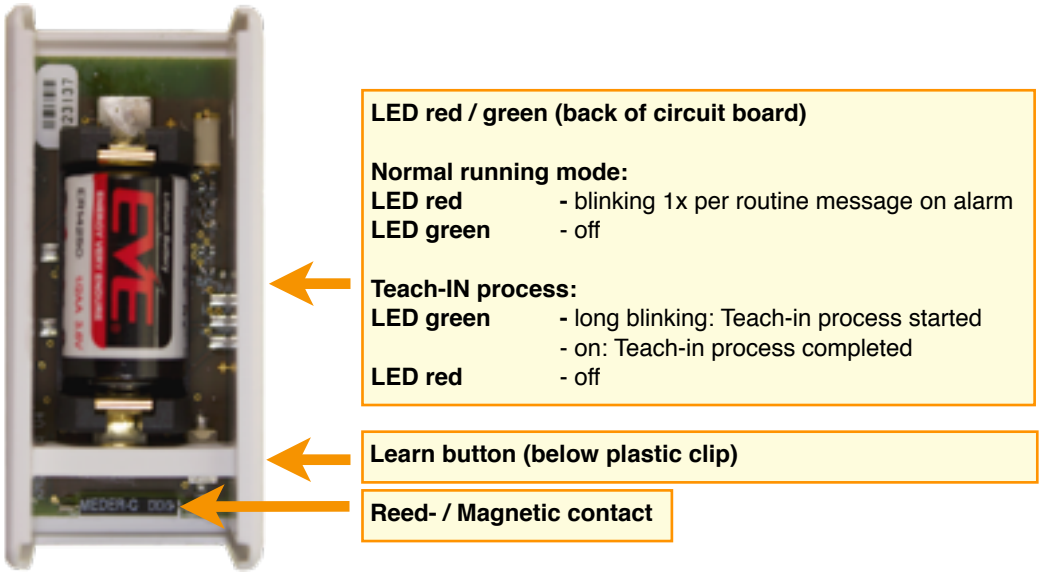
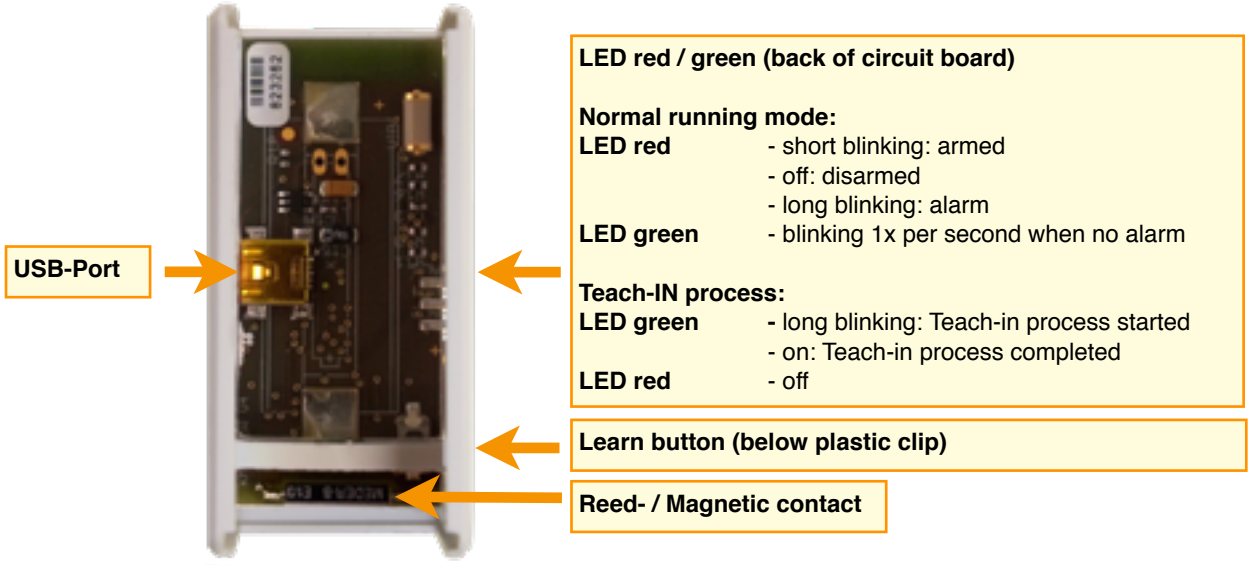


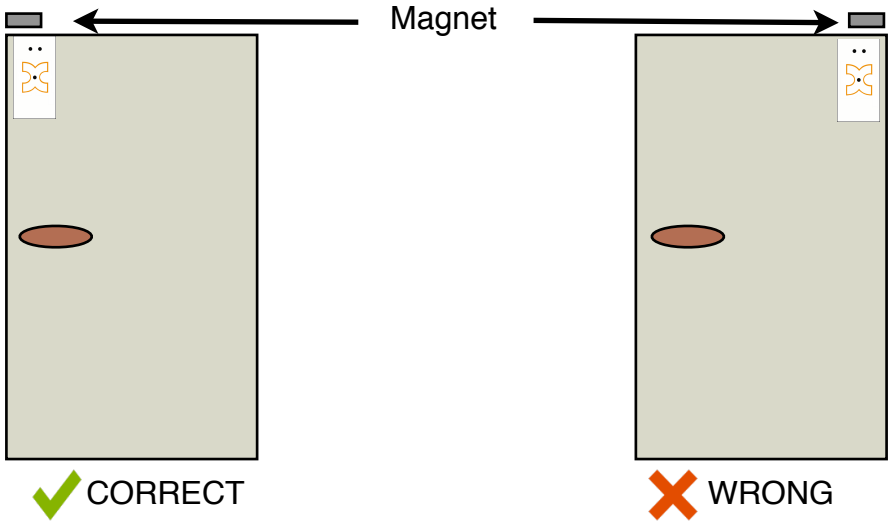
Figure 2: MultiSensor-RACK-MINI



5.5.1. Mounting instructions

The MultiSensor-Door / -RACK-MINI is equipped with several different sensors. To ensure the best evaluation and functioning of the sensors, please note the following **mounting instructions:**

- Only install the MultiSensor in horizontal or vertical direction on the handle‘s side of the door or window



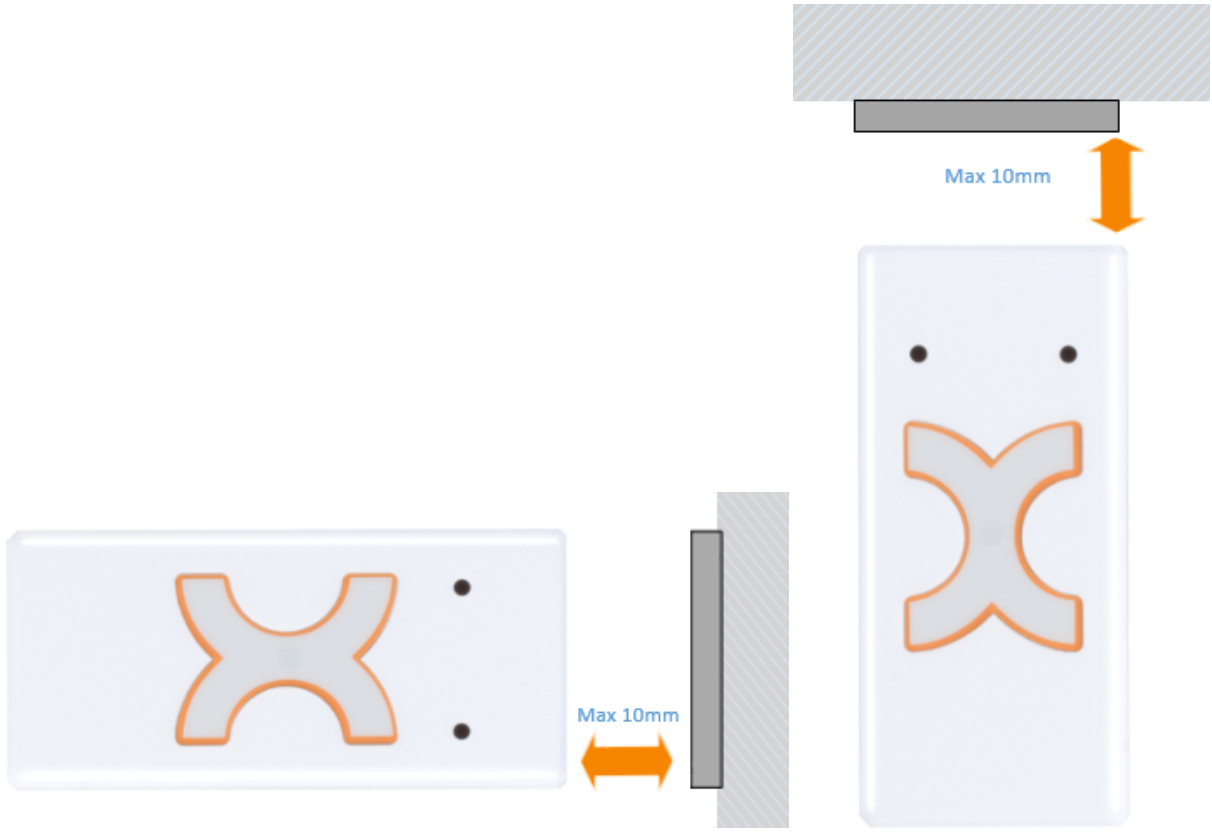
- when using the reed contact, keep the distance to the magnet below one centimeter
- only use suitable mounting material (foam tape)
- sensor casing can be fastened with screws on the door or window, if necessary

ATTENTION!
Kentix is not liable for false alarming or damages on devices due to improper installation.

5.5.2. Usage of the reed contact

The reed contact extends the MultiSensor-Door / -RACK-MINI by an additional alarm contact for the definite open/closed detection of a door or window. The contact reacts to magnetic fields (magnet contained in package). For the installation a wiring is not necessary.
To ensure the functionality of the contact, take care to not exceed the **maximum distance of one centimeter** between magnet and casing and orientated to one side of the casing of the MultiSensor.

Depending on the type of the door or window it might be necessary to place a spacer between surface and magnet to not exceed the maximum distance to the sensor.



5.5.3. Opening of the casing / replacement of battery

The board of the MultiSensor-Door / -RACK-MINI is fixed in the lid of the casing which is connected to the bottom part with two screws. To open the casing remove the two screws on the top and bottom side and pull the lid away from the bottom part.
Take the battery out of the mounting and replace it with an equivalent type (see data sheet).

NOTE!
The battery level of the MultiSensor-Door can be read out with the ControlCenter. At a low battery level an alarm is sent via SMS and E-mail to all administrators. In this case replace the battery as soon as possible.

Please note that an active connection to an AlarmManager is required for the operation of the MultiSensor-Door. If the MultiSensor is not configured on an AlarmManager or the connection is interrupted, the battery in it will discharge much faster.

5.5.4. Adding a MultiSensor-Door / -RACK-MINI

1. For adding a MultiSensor-Door / -RACK-MINI to the AlarmManager‘s configuration, start the teach-in process in the Kentix ControlCenter. Press the „learn button“ and keep it pressed.
   Directly after pressing it, a sound is played which is repeated after approx. 5 seconds.
   Release the button after the second sound.
2. The sensor should appear in the list after approx. 15-20 seconds and is configured automatically.
3. The teach-in process is completed, when the sensor is marked in the list with a green checkmark.
4. For completion click on Apply to add the MultiSensor-Door to the devices list.

NOTE!
The MultiSensor-Door (battery version) sends its data, depending on the configured energy profile, in a routine message every 5 or 10 minutes. Note that it can take up to 10 minutes after saving the data to the AlarmManager, until the sensors measured values appear in the ControlCenter‘s dashboard.

5.5.5. Identifying a MultiSensor-Door / -RACK-MINI

If more than one sensor was added during the teach-in process, it might be necessary to identify the sensors for configuration.
To identify a sensor open the settings tab „Sensors-Devices“ and right-click on one of the MultiSensor-Door / -RACK-MINI. In the context menu choose „Identify sensor“.

A search window appears to display an identified sensor.
Now take one of the sensors and briefly press the „learn button“ one time. The sensor makes a short sound and will appear in the window after a few seconds.
Afterwards the window closes automatically and the sensor is marked in the device list of the ControlCenter for further configuration.
Repeat this process for all other MultiSensors, if necessary.

5.5.6. Profile description

The MultiSensor-Door / -RACK-MINI is configured for its intended use with the help of so called door-profiles and an associated sensitivity. With these two options the threshold values of the sensor are defined.

Choose the door-profile, which most likely corresponds to the intended use.

Find an overview of the sensitivity levels in the table below:

Sensitivity level	Alarm triggering
Low	The threshold values of the sensor are high. A heavy vibration, acceleration or change in position with an angle of more than 30 degrees is required to trigger an alarm. This level is suitable for monitoring the outer skin of a building. The level is unsusceptible for false alarms, but reliably detects intrusion attempts with the use of force.
Medium	The threshold values of the sensor are on a medium setting. Slight vibrations, accelerations or changes in position with an angle of more than 10 degrees will trigger an alarm. This is the default level when adding a new sensor. It is slightly susceptible for false alarms, but offers a high degree of security by an early alarm triggering.
High	The threshold values of the sensor are on a low setting. Very slight vibrations, accelerations or changes in position with an angle of more than 5 degrees trigger an alarm. This level is especially suitable for secured areas. It should only be selected, if the surrounding area is free of vibration. Slight vibrations in the installation area of the sensor already lead to an alarm triggering and can so also lead to false alarms.

5.5.7. Testing the settings

To test the profile settings and sensitivity levels, proceed like described in the following:

1. Activate the internal buzzer of the MultiSensor-Door / -RACK-MINI by setting the sensors state in its configuration mask to „Active (with buzzer)“. This will give an additional acoustic feedback by the sensor when an alarm is triggered.
2. In the configuration mask of the sensor select „Test mode“ as energy profile. This will reduce the default send time from 5 minutes to 10 seconds (MultiSensor-Door only).
3. Create a new alarm zone for the sensor and then transfer the settings to the AlarmManager.
4. Switch the zone with the single sensor to armed state.

NOTE! (MultiSensor-Door only)
To save energy the sensor sends its data in normal operation mode (system disarmed) only every 5 minutes to the AlarmManager. The arming and alarm triggering also is done after data transmission to the AlarmManager.
Because of this it takes up to 5 minutes until the MultiSensor-Door can trigger alarms.
To avoid this delay, simply press the „learn button“ one time after arming the zone.

5. It is now possible to trigger alarms by moving the door or window.
   Note that it takes 30 seconds after an alarm triggering until the next alarm will be triggered.
6. Note that the test mode causes a higher power consumption. To avoid this reset the energy profile to „Standard“ or „Powersaving“.

5.6. MultiSensor-Rack

The MultiSensor-RACK can be operated as stand alone device, but also in combination with an AlarmManager-PRO. The AlarmManager then controls the environmental sensors.
For configuration in stand alone operation a web server is integrated, which allows you to control and setup the device via LAN and a web browser.
Over the SNMP interface, an integration in network management systems is possible.

5.6.1. Safety note and installation

In case of a power failure, the settings are not lost. Energized relays drop out and go back when the power returns to the unswitched, closed output state.
To bridge longer downtimes, use a suitable UPS system.
In case of an equipment failure an uninterruptible power supply to the connected devices is ensured by the closed state of the relays.

To ensure the security and integrity of the operator and the correct operation of the KENTIX MultiSensor-RACK, the execution of the installation only has to be done by an expert. Also ensure that the relevant requirements are met.

Connection via PC:	Connect the LAN jack from the MultiSensor-RACK over a LAN cable with your network and your PC. Pay attention that you have to use a Cross-Over network cable, by a direct connection. Set the IP address of your PC to e.g. „192.168.100.123“.

5.6.2. Default settings

Voltage supply:	**Basic voltage supply realized with PDU-1 power input**
Default IP-address:	192.168.100.223
Subnet mask:	255.255.255.0
Gateway:	192.168.100.1
User:	admin
Password:	password

IMPORTANT! - Reset to factory defaults
If you have forgotten the IP-address or login information of the MultiSensor-RACK, you can reset the device to factory defaults.
To do this press both buttons for the display control at the same time and hold them down.
After 10 seconds a security prompt is displayed. By pressing the right button the MultiSensor will then be reset to factory defaults.
After this procedure the device will restart and can then be accessed via the default settings.

5.6.3. Overview connections

PDU-1 (Main PDU)
- Independent of PDU-2
- Max. power consumption 3.600VA
- Internal protection 2x10A, time lag fuse
- Total load over all 4 outputs max. 16A
- Power Strip switchable
- Energy measurement outlet 1-4
- Main equipment supply - Electronics

PDU-2
- Independent of PDU-1
- Max. power consumption 3.600VA
- Internal protection 2x10A, time lag fuse
- Total load over all 4 outputs max. 16A
- Power Strip switchable
- Energy measurement outlet 1-4

PDU-1
UPS-Mains connection
(Type **C20**)

PDU-2
UPS-Mains connection
(Type **C20**)

PDU-1, Output 1
Power outlet 1+2
(Type **C13**, 2.300VA/10A)

PDU-1, Output 2
Power outlet 3+4
(Type **C13**, 2.300VA/10A)

PDU-2, Output 2
Power outlet 3+4
(Type **C13**, 2.300VA/10A)

PDU-2, Output 1
Power outlet 1+2
(Type **C13**, 2.300VA/10A)

Installation to front or back
support rail

5.6.4. Recommended installation

1. If possible, install the MultiSensor-RACK at the top position in the rack and leave 1 height unit free below the device.
   This ensures that the environment sensors can detect the actual state in the rack.
2. For the installation of the mounting brackets only use the included screws. The mounting brackets can be attached to two different positions for installation either to the front or to the back support rail.
3. Connect the power cable of the power consumers to PDU 1 or 2 and secure them with the provided strain relief.

5.6.5. Configuration

In the following the stand alone functionality of the integrated web servers is described. For these functions no AlarmManager is required. If you use the MultiSensor-RACK in combination with an AlarmManager-PRO, configuration and monitoring of the environment sensors is done via the AlarmManager. The energy measurement and its alarming states are exclusively found in the web interface.

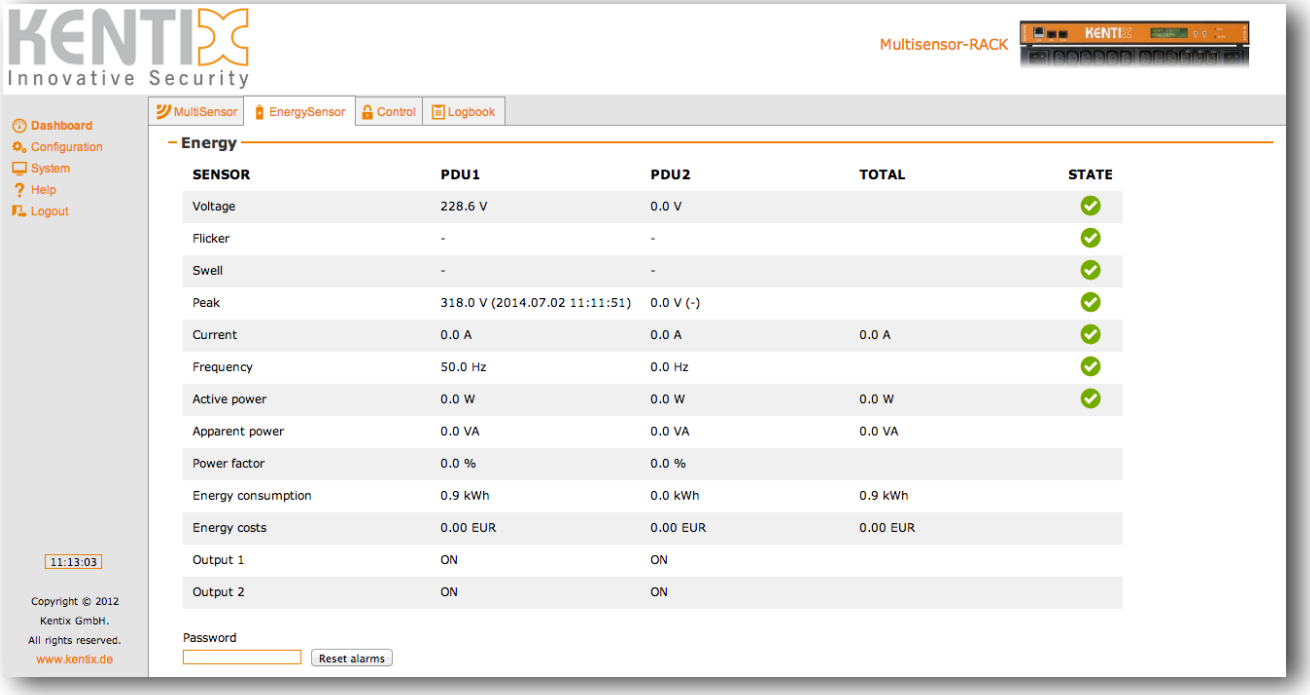
Important!
The MultiSensor-RACK extends the MultiSensor-LAN by the energy measurement functions. The MultiSensor functionality corresponds the functionality of the MultiSensor-LAN except for the motion sensor. To configure MultiSensor settings, read the according section in the MultiSensor-LAN configuration.

Navigation

Dashboard	- Start page with environment sensors, Energy measurement, Control of the digital Output 2 and PDU 1+2, Logbook
Login	- User login
Configuration	- Basic configuration, MultiSensor- / EnergySensor- and User-configuration
System	- System information (software version), test features, logbook and device-restart
Help	- Manual download and support information
Logout	- User logout

5.6.6. EnergySensor - Energy

Shows all actual energy measurement values for PDU 1+2 (PDU=Power Distribution Unit), the energy consumption with costs and the alarm state in one table.



Voltage
Display of the actual mains voltage in volt (V).

Flicker
Display of voltage drops of the supply voltage over a configured period of time (number of half-waves, minimum 1 half-wave) for each PDU as time value / time. Always the last appearance of a voltage drop will be displayed.

Swell
Display of voltage overshoots of the supply voltage over a configured period of time (number of half-waves) for each PDU as time value / time. Always the last appearance of a voltage drop will be displayed.

Peak
The MultiSensor-RACK measures the supply voltage with a sampling rate of 4000 measurements / second (250 μs per measure). A peak is the highest value per second.
Overshoots of the line voltages configured tolerance range in volt with the time of the appearance are displayed in the table (last appearance of a peak).

Current
Display of the actual power demand of the connected power consumers in ampere (A).

Frequency
Actual mains frequency in hertz (Hz).
The frequency determines the length of the half-waves (50 Hz ≙ 10 ms, 60 Hz ≙ 8,33 ms).

Active power
The active power (P) shows the actual power of the PDU. Its calculated by multiplying voltage, current and the power factor.

Apparent power
Total power of the PDU in volt ampere (VA). It results from the idle power and the active power.

Power factor
The power factor is the ratio between active power and apparent power. It indicates which part of the apparent power is converted to the desired active power.

Energy consumption
Total energy consumption in kilowatt hours (kWh) since the start of the measurement. The consumption values are stored in the MultiSensor-RACK and preserved even after a restart.
It can be reset in the configurations menu in the EnergySensor section.

Energy costs
Shows the actual costs for the energy consumption since the start of the measurement. The costs result from the consumption and the configured price.

IMPORTANT!
To display the costs a price has to be entered in the configuration (section EnergySensor).

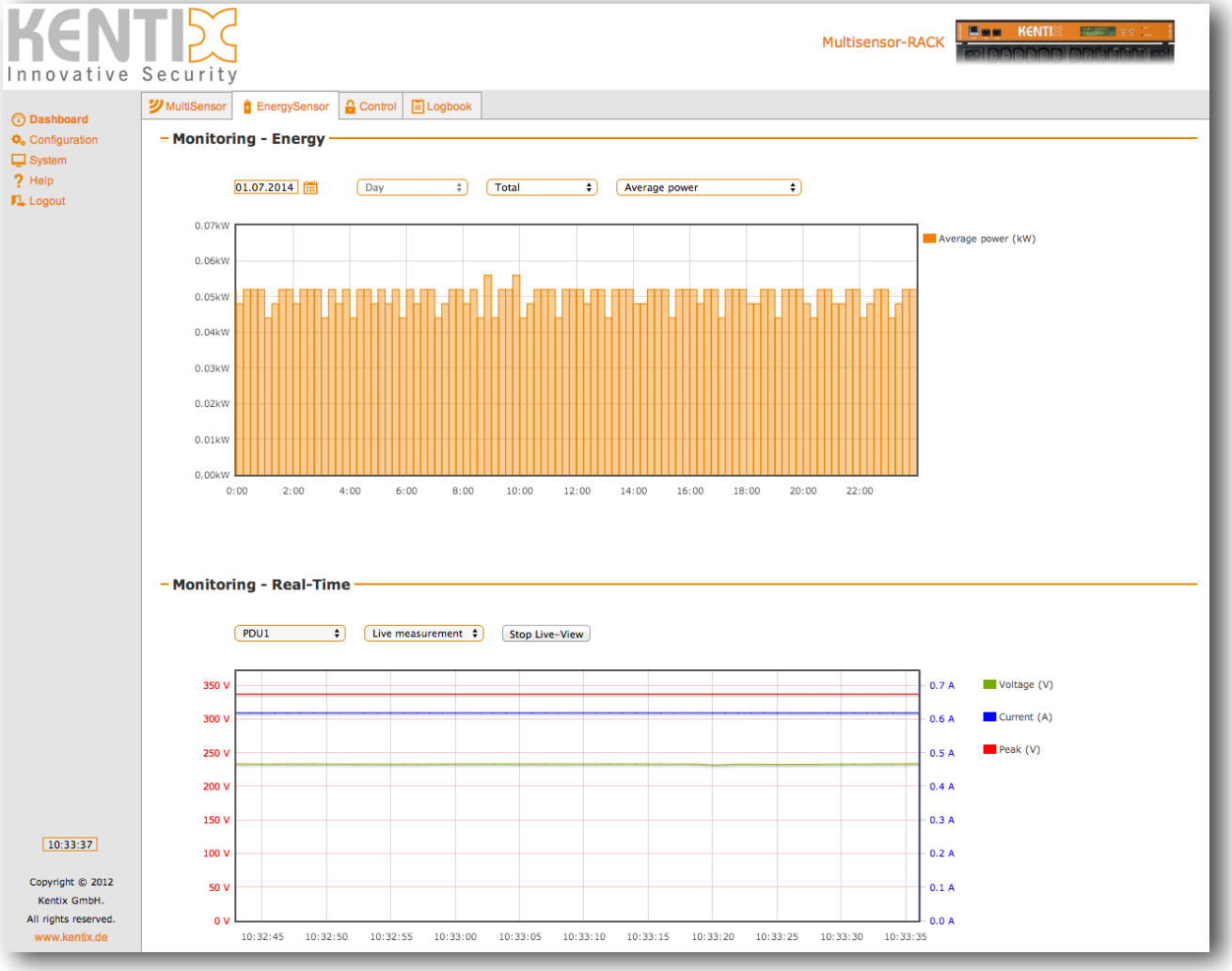
Output 1/2
Shows the actual state of the outputs (1 output per PDU on MultiSensor-RACK Revision 1, 2 outputs Revision 2) for the PDUs power supplement of the end devices.

Reset alarms
Resets the display of Flicker-, Swell- and Peak-Alarms.

NOTE!
For actualization of the alarms Flicker, Swell and Peak a Retrigger time is configured which also avoids that alarms are reported multiple times.
For the actualization / signalization of new alarms resetting the last alarms is not necessary.

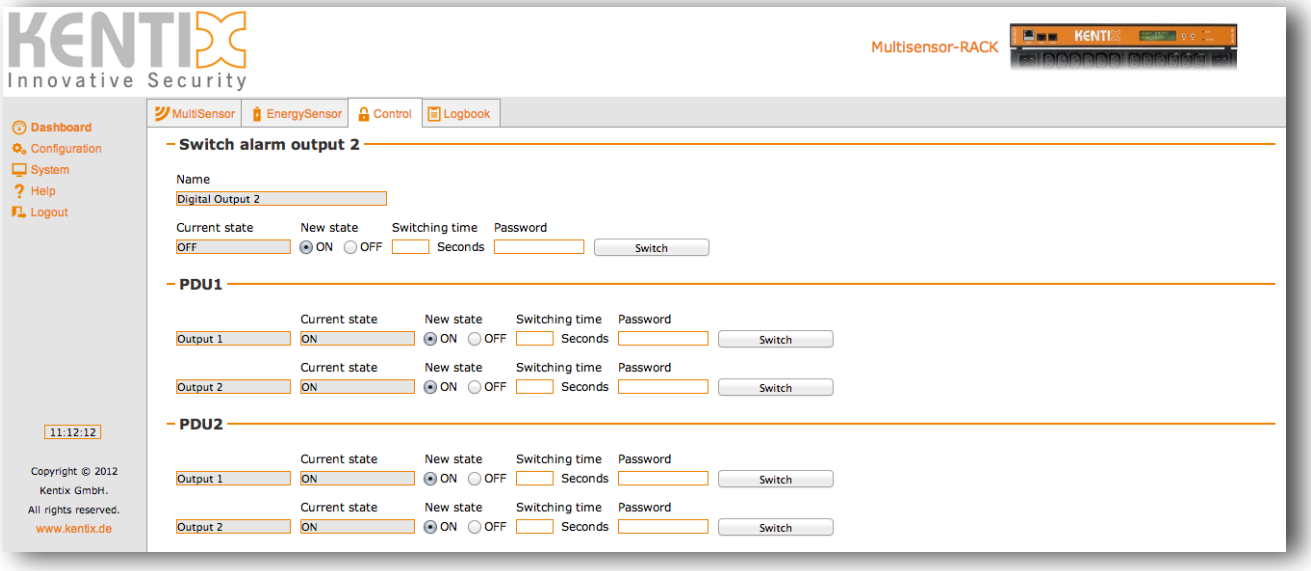
5.6.7. EnergySensor - Monitoring

Graphical display of the recorded active power and energy consumption and costs.
The recording is stored for up to 1 year. If the memory of the recording is full, the oldest values will be deleted automatically.



The real time graph shows the actual voltage profile, current and peak voltage for the last minute. Peak alarms will also be displayed. An occurring peak alarm will also be stored for later viewing.

5.6.8. Control



Switch alarm output 2
Changes the state of the 2nd alarm output (output 1 is controlled by the alarming) for the entered switching time. If „0“ is entered for the time, the output stays permanently switched on.
For switching, the user password has to be entered. Default state of the output is 0.

PDU 1/2 - Switch outputs
Switches output 1/2 of the PDU on or off. If the value for the switching time is „0“ or empty, the PDU is switched permanently. For switching, the user password has to be entered.

WARNING!
Deactivating an output stops the power supply to all connected end-devices of the PDU.

5.6.9. Configuration - EnergySensor

With the following settings set the limits for the alarm triggering of the energy sensors. If an alarm is triggered, e-mails will be sent to the configured users and the buzzer is activated.
The configuration has to be made for each PDU.

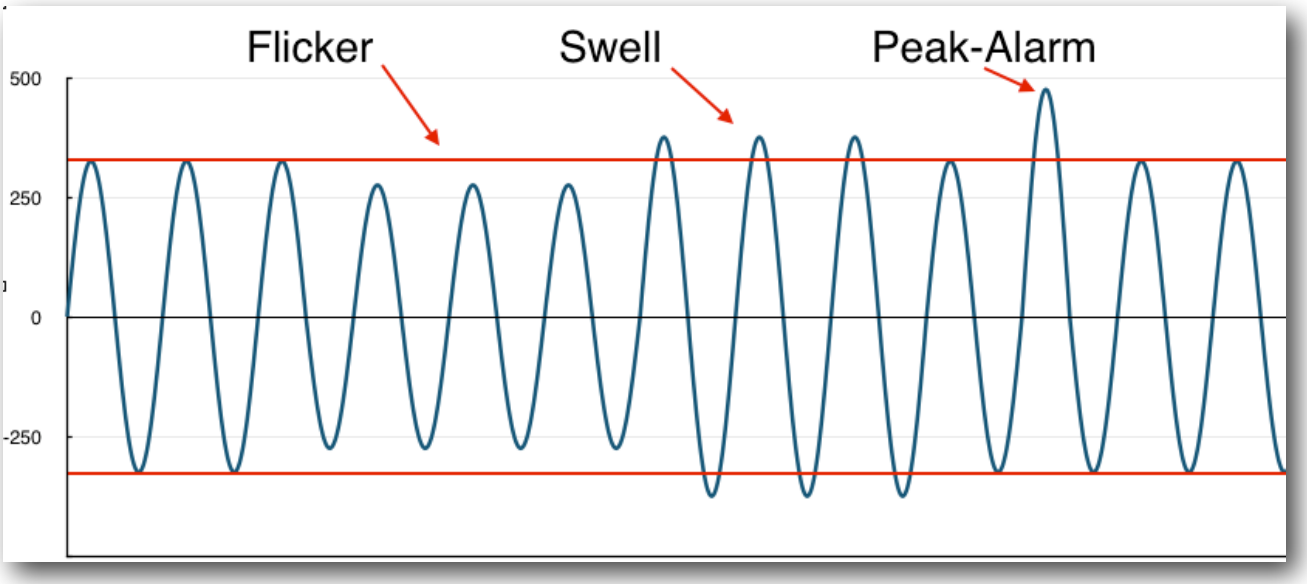
Name
Assign the displayed name for each PDU.
On an alarm the name will also be shown in the notification (e-mail / SMS).

Line voltage / frequency
Sets the regional dependent default values for the external power supplement. This are also the base values for the error detection and the energy measurement.

Active power / Voltage / Current
Define a minimum and maximum value for each measured value to monitor the energy measurement.
The minimum values are set to 0 in delivery state. After commissioning and configuration the value range can be redefined to detect e.g the power failure of an end-device. Find the exact limits for each value in the data-sheet.

Frequency
Enter a limit as tolerance for an fluctuation of the power frequency.
Reference value is 50 Hz or 60 Hz. Adjustment range is 0,1 bis 1,0 Hz (Default value: 0,1 Hz).

Flicker / Swell / Peak



Flicker and Swell are short-term fluctuations of the supply voltage.
Flicker here is a voltage drop, Swell a voltage overshoot.
For the monitoring of both values a tolerance in percent (related to the nominal voltage) and the number of half-waves to view has to be set.

Peak
Peak is the highest occurring voltage during the normal operation (amplitude).
For the monitoring an upper threshold value of this amplitude voltage can be set. This exceeding is also called peak or peak-alarm (default value: 400V).

Alarm handling
The Retrigger time defines, after which time the alarms Flicker, Swell or Peak are reset for the next triggering. This setting avoids that an event which persists for a longer period will lead to a repeated alarming in short distances of time.

Costs
Value for the costs per kilowatt hour and the monetary unit.

Reset energy consumption
Sets the internal consumption counter of the MultiSensor-RACK back to 0 and deletes all recorded data. For safety reasons the user password has to be entered before the reset.

5.6.10. Users

Enter data for up to 5 users with individual passwords. The passwords also give access to the switching function of the PDUs and the digital output 2.
The account data of the first user are in addition the account data of the internal ftp-server for running updates on the MultiSensor-RACK. For E-Mail alarming enter the addresses of the recipients here.

5.6.11. System

System information
Shows the firmware version numbers of the MultiSensor-RACK.
Find the actual firmware on the Kentix Website in the Software section.

Test functions
Test your E-Mail and SNMP settings via the two test buttons. The E-Mail or Trap sending is logged and can be checked in the logbook.

Backup configuration
For backup purposes the actual configuration of the MultiSensor can be downloaded to the PC.

Restore configuration
Loads a previously created backup into the device and restarts it. The settings of the backup directly get active afterwards.

Firmware-Update
Loads a firmware file (image.bin) into the MultiSensor and restarts it.

NOTE!
Please note the corresponding release notes of the downloaded update!

Restart
The MultiSensor-RACK can be restarted for testing- or maintenance purposes. Note that the data recording is suspended for the duration of the restart. The power supply of the connected devices is NOT interrupted during the restart.

5.6.12. Configuration of the vibration sensor

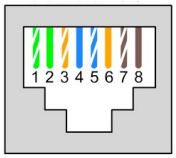
Define the triggering threshold for the integrated vibration sensor. The alarm is triggered, when the threshold is exceeded.
The trigger sensitivity can be adjusted to detect slight vibrations (e.g. moving of the rack) as well as heavy vibrations (bumps or movement of the MultiSensor-RACK) can be detected.

5.6.13. Kentix system jack - MultiSensor-RACK

Via the Kentix system jack, located in the front of the MultiSensor-RACK, system components such as leakage detectors, door contacts, acoustic signals or alarms of USPs or climate devices can be connected.

To connect external devices or alarm in- or outputs, two connector modules are available:

1) Power-Adapter KIO 1: Power supply, 2 digital inputs
2) Power-Adapter KIO 3: Power supply, 2 digital inputs and 2 relay outputs



KENTIX system jack

1 - Internal system voltage (GND)
2 - Alarm output 1 (Open Collector 100mA)
3 - Alarm output 2 (Open Collector 100mA)
4 - not connected
5 - not connected
6 - Alarm input 1 (External dry contact, no/nc)
7 - Alarm input 2 (External dry contact, no/nc)
8 - Internal system voltage (5V)

5.7. Control a network camera with MultiSensor-LAN/RACK

The MultiSensor-RACK offers the possibility to send a control sequence as a HTTP request to any IP ready network camera in case of an alarm. So in addition to the e-mail alerting also a video picture or a video sequence can be sent. The transmission from the video picture is done by the camera.
The information to control the camera has to be inserted into the „cam.ini“ file. Create this file with a text editor and copy it to the root directory of the MultiSensor via FTP, where you will also find the „config.ini“ file. After a reboot the configured command sequence will be sent to the camera in case of an alarm. Up to five cameras can be controlled. Create a new line in the „cam.ini“ file for each camera.

File content (cam.ini)
IP-ADDRESS;IP-PORT;HTTP-CAM-COMMAND;HOST-ADDRESS;SERVER-NAME

The delimiter for each parameter is a semicolon.

EXAMPLE: File content (cam.ini)
192.168.100.224;80;/cam/command/input=trigger;www.kentix.com;My-Camera

The HOST address can be any, is required by some camera servers.

EXAMPLE: File content (cam.ini) for AXIS Video Server 240
192.168.100.224;80;/axis-cgi/io/virtualinput.cgi?action=6:/;www.kentix.com;Axis-Server240

Details for configuring E-Mail events in your network camera and the control sequence can be found in the manual of the camera manufacturer.

5.8. Communication Interfaces MultiSensor-LAN/RACK

With the MultiSensor-RACK it is possible to send alarms as SNMP Traps.
Additionally all sensor values can be queried using the supplied MIB (Management Information Base).
This allows the integration in network-monitoring-systems like e.g. PRTG or Nagios.

For querying values and also recorded environment- and consumption values the MultiSensor-RACK furthermore has a XML interface. The following queries can be executed:

XML-Path	Description
http://IP-Address/xml/values.xml	The actual environment values
http://IP-Address/xml/energy.xml	The actual energy measurement values split by PDU 1+2
http://IP-Address/xml/record_values.xml	Recorded environment values of the last 3 month
http://IP-Address/xml/record_energy.xml	Recorded average power per 15 minutes for a timespan of up to 1 year

5.9. Perform software update on MultiSensor-LAN/RACK

The MultiSensor-LAN/RACK offers the possibility to actualize its software via the integrated web server.
Actual software updates are available in the software section on www.kentix.com.
To check the actual installed software version, open the sensor‘s web server and open the system information in the „System“ section.
To perform an update follow these steps:

Nr	Step
1	Unpack the update file (ZIP) into an new folder on your PC. The unpacked file has the name „image.bin“ and must not be renamed.
2	Connect to the MultiSensor using a web browser. Login to the device and click on „System“.
3	Before the update, there is the possibility to perform a backup of the configuration. This backup can also be used to be restored to another MultiSensor-LAN or -RACK. For the update the backup is not mandatory, the configured settings will not be deleted during the update process. We only recommend to create a backup in case of an error.
4	After the backup, please click on the button „Start update“ in the section „Firmware update“.
5	The device will restart and then display an update dialogue.
6	Choose the unpacked firmware file „image.bin“ and then again select „Start update“.
7	After about 1-2 minutes the MultiSensor automatically restarts. **IMPORTANT! During the update process, the power supply must not be interrupted.**
8	The MultiSensor is now available again and you can check the software version in the „System“ section.

6. How to open the AlarmManager chassis for inserting a SIM card

The device lids of the AlarmManager are jammed in one surrounding on the device bottom part with the electronics. The lid can be lifted without tools by slightly pulling it apart on its sides. Proceed as follow:

Open the device lid:

1. Lay down the device with the port side forward.
2. Pull the lid at the sides apart sightly (see picture).
3. The lid will snap out from the surrounding groove with a clicking noise.
4. Now, you can pull up the lid.

NOTE!
For setup and configuration of the MultiSensor-LAN/RF there is no opening of the chassis needed!

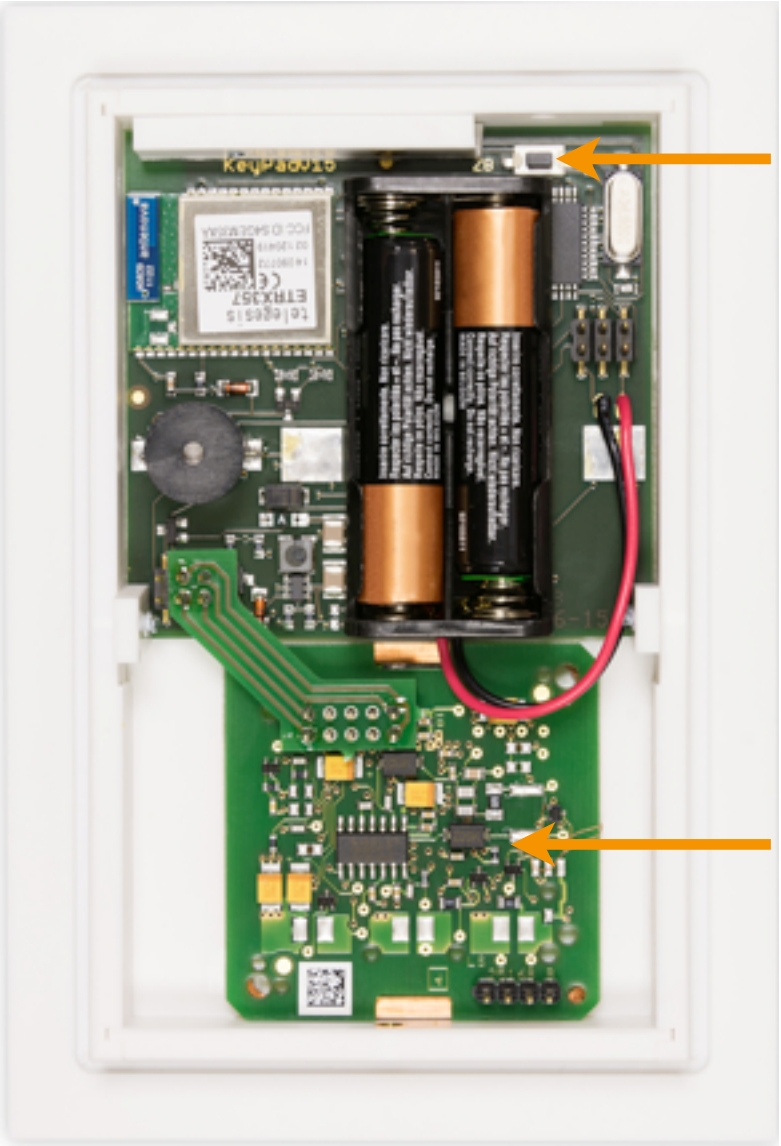
Close the device lid:

1. Lay down the device with the port side forward.
2. Pay attention, that the broader protrusion from the lid (space groove to casing edge) shows in the direction of the connectors.
3. Pull the lid by the sides apart slightly and put the casing lid on the bottom part.
4. Slide the lid on the bottom part till the lid snaps in with a clicking sound.

7. KeyPad

The KeyPad is used for arm-disarm switching of the AlarmManager on the ground. The KeyPad is just like the MultiSensors integrated into the ZigBee© wireless network of the AlarmManager. However, note that the KeyPad does not work as a router and can not extend the network range.

Note that the KeyPad turns on only after pressing one of the three function keys.
The duty cycle is then about 10 seconds. During this time you can select appropriate functions or communicate with the ControlCenter.



7.1. Adding a KeyPad

1. For adding a KeyPad to the AlarmManagers configuration start the teach-in process in the Kentix ControlCenter. Press one of the function buttons and then the „learn button“.
2. Now press one of the function buttons for every 5 seconds. The KeyPad should appear in the list during the next 15-20 seconds and will be configured automatically.
3. The teach-in process is finished when the KeyPad is marked in the list with a green checkmark.
4. To add the KeyPad to the devices list, click on Apply.

7.1. Operation KeyPad

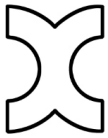
First press the desired function key (arm, disarm, zone) and then enter your personal 4-digit code. The function is triggered immediately after entering the fourth and last code digit. Each key-press is acknowledged with an acoustic "beep". The selected function is indicated by an LED in the button.

By pressing one of the keys "arming" or "disarming" followed by entering your personal code the zone assigned to the KeyPad is switched.
Note that every user needs the according permissions to use a KeyPad.

If you would like to arm-disarm the whole system (all zones), first press the zone button and then button 1. Then run the desired function of the function key.

The LEDs are blinking according to the possible entries.

Basically for the KeyPad operation it is the same acoustic and optical feedback, such as for remote control via mobile phone or an external switch contact.

	**Arming - leave the room** *OK :* 5 seconds acoustic beep signal, LED lights constant, MultiSensors signal acoustically according to the time delay. *Not OK :* 3 seconds constant acoustical signal. All LEDs are flashing.
	**Switch all zones** Controlled by pressing the zone button followed by button 1. After it the LEDs for the possible functions for arm or disarm light up.
	**Disarming - enter the room** *OK :* 1 second constant acoustic signal, LED lights constant, MultiSensors signal also with 1 second acoustic signal.
	**RFID reader (Optional)** Select the desired function (arm, disarm, zone) and keep the RFID card centered on the reader. The function is executed immediately after the correct read.

Important!
With the KeyPad only alarms of the type „Armed-Active“ can be switched to armed-disarmed.
Alarms of the type „Always-Active“ are triggered independent of the armed-disarmed state of the AlarmManager. The sensors can be assigned individually to the two alarm levels.

8. Enhancements

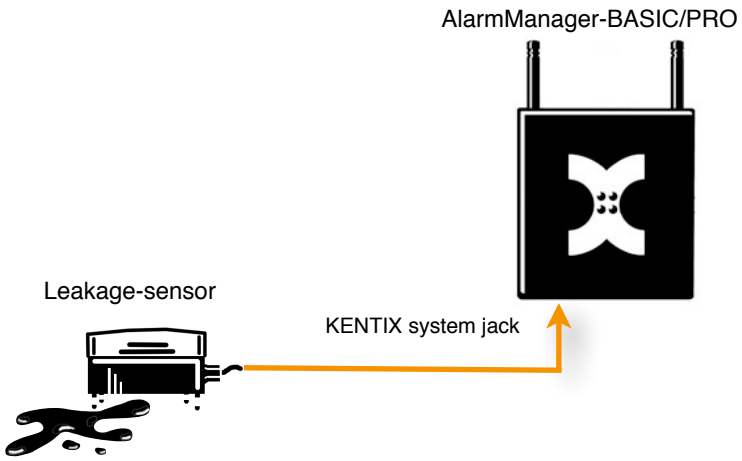
8.1. Leakage sensor (KLS03)

The leakage sensor KLS03 is shipped with a 10m patch cable for a direct connection to Kentix devices via the Kentix system jack. It is also powered by the system jack.
An LED indicates the current state of the sensor (GREEN: no alarm / no humidity; RED: alarm / humidity detected). To test the sensor touch it's bottom of the sensor with a wet cloth. The internal LED should signal the detection by glowing RED.
The detection unit is maintenance-free when detecting normal water. Aggressive or solvent-containing liquids can damage the sensor and cause false alarms. A contamination of the sensor electrodes also leads to incorrect measurements.

IMPORTANT!
The signaling for a connected leakage-sensor is realized via the external alarm input of the device to which the leakage-sensor is connected (AlarmManager or MultiSensor). For the correct functioning, this input has to be configured correctly (see examples).
Therefor its necessary to test the alert triggering after connection to ensure the correct cabling.

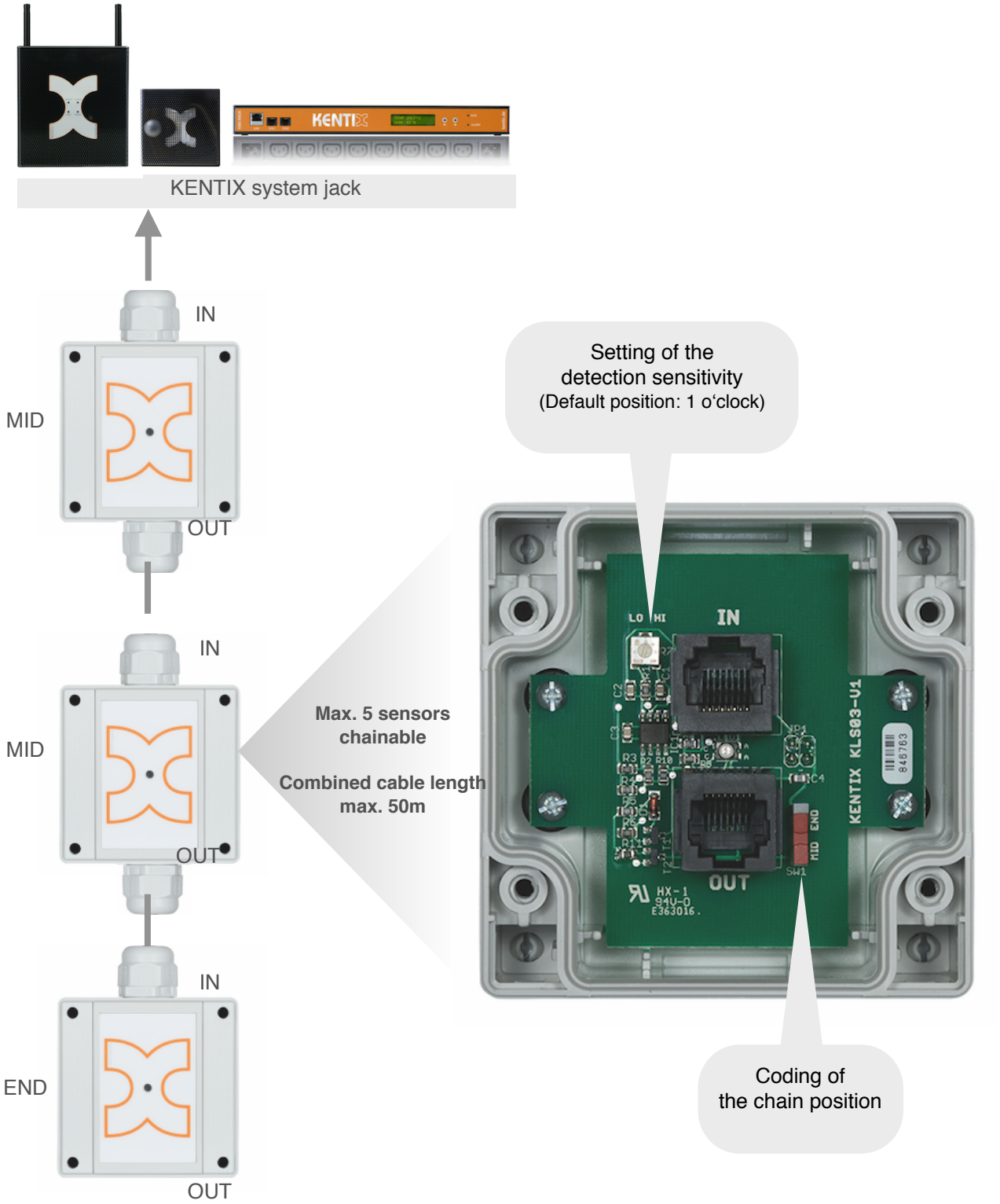
Connection example 1: Leakage-Sensor connected to AlarmManager

Plug the connection cable of the leakage-sensor into one of the System-jacks of the AlarmManager.
The powering and alarming is done directly via the AlarmManager. With the ControlCenter enter a suitable name for the external alarm input and set the alarming of the input to „Always-Active" for a permanent alarming. If the leakage sensor is working with opening the contact on an alarm, additionally change the alarm logic to „Open".



Connection example 2: Daisy chaining leakage sensors

It is possible to to chain up to 5 leakage sensors together and connect them to a Kentix system jack via standard patch cables. Therefore they can be patched into structured wirings. The combined cable lenth should not exceed 50m. It is important to code the according sensors as intermediate or end device.For this purpose a micro switch is located inside the casing.



8.2. Kentix Power-Adapter (KIO1) with digital input clips

The Kentix I/O Power-Adapter is used to expand your Kentix-solution to include the additional functions:

• Power supply for up to two MultiSensors-RF via an AC adapter
• Connecting of up to two external alarms via dry contacts to a MultiSensor

The adapter is connected directly to the Kentix system jack and offers the possibility to power the MultiSensor with a power plug or a permanently connected AC adapter.
The cable length between MultiSensor and the KIO1 adapter should not exceed the following lengths:

• Power supply only: up to 50m
• Power supply with digital inputs: up to 10m

Important!
When using the input clips for external alarms and simultaneous power supply of two MultiSensors remove the jumpers. Otherwise the external alarms will be indicated on both sensors.

Figure 1: Back of Kentix Power-Adapter (KIO1)

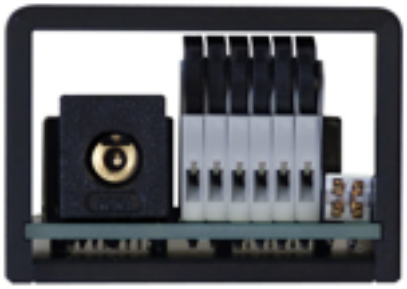
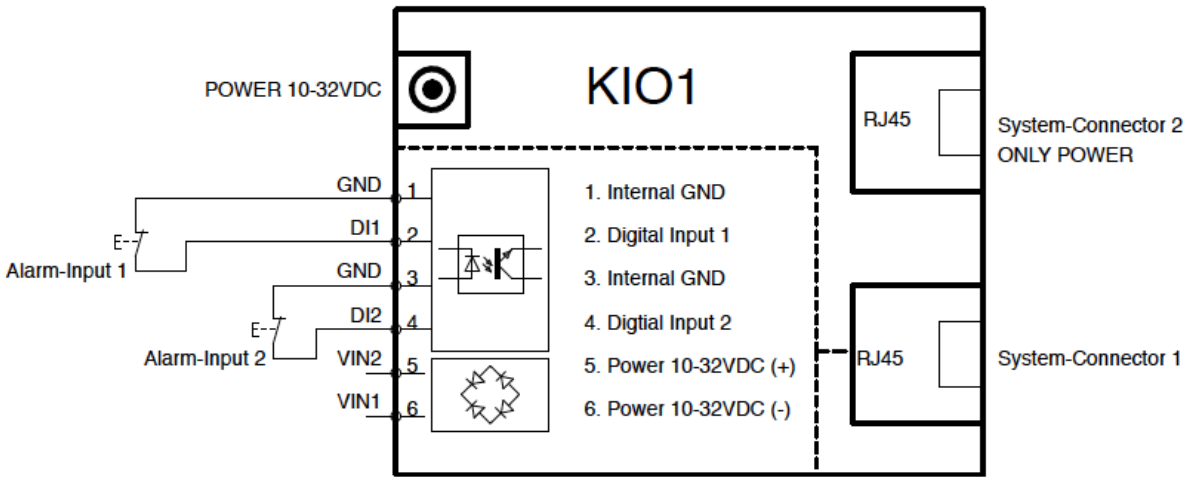


Figure 2: Circuit diagram



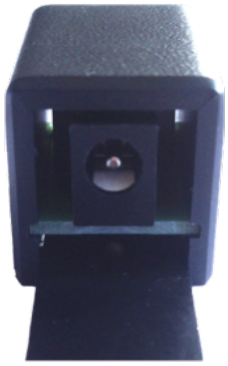
8.3. Kentix Power-Adapter (KIO2) for powering a MultiSensor

The Kentix I/O Power-Adapter KIO2 is used to expand your Kentix solution by offering the following features:

- Connection of a MultiSensor-RF/-LAN/-LAN-RF for a separate power supplying

The adapter is directly connected to the Kentix system jack and offers the possibility to supply power for one MultiSensor via an external power supply.
This can be necessary e.g. if no PoE-Switch is available for the operation of a MultiSensor-LAN/-LAN-RF or when a MultiSensor-RF shall be connected separately to monitor the external power.
The cable length between MultiSensor and the KIO1 adapter should not exceed 50 meters.

Figure 1: Back view of Kentix Power-Adapter (KIO2)



NOTE!
Dieser Adapter dient ausschließlich der Spannungsversorgung eines MultiSensors. Die Alarmeingänge und -ausgänge am MultiSensor stehen bei Verwendung dieses Adapters nicht mehr zur Verfügung.

8.4. Kentix Power-Adapter (KIO3) with digital I/O clips

The Kentix I/O Power-Adapter is used to expand your Kentix-solution to include the additional functions:

- Power supply for up to two MultiSensors-RF via an AC adapter
- Connecting of up to two external alarms via dry contacts to a MultiSensor
- Controlling resp. switching of up to two external devices via relays by a MultiSensor

The adapter is connected directly to the Kentix system jack and offers the possibility to power the MultiSensor with a power plug or a permanently connected AC adapter.
The cable length between MultiSensor and the KIO3 adapter should not exceed 10m.
The relays are equipped with PDT contacts and can be loaded with up to 60VDC/3A.

Important!
When using the input clips for external alarms and simultaneous power supply of two MultiSensors remove the jumpers. Otherwise the external alarms will be indicated on both sensors.

Figure 1: Back of Kentix Power-Adapter (KIO3)

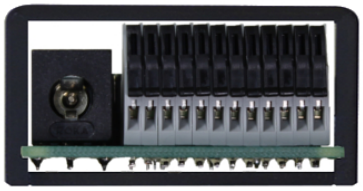
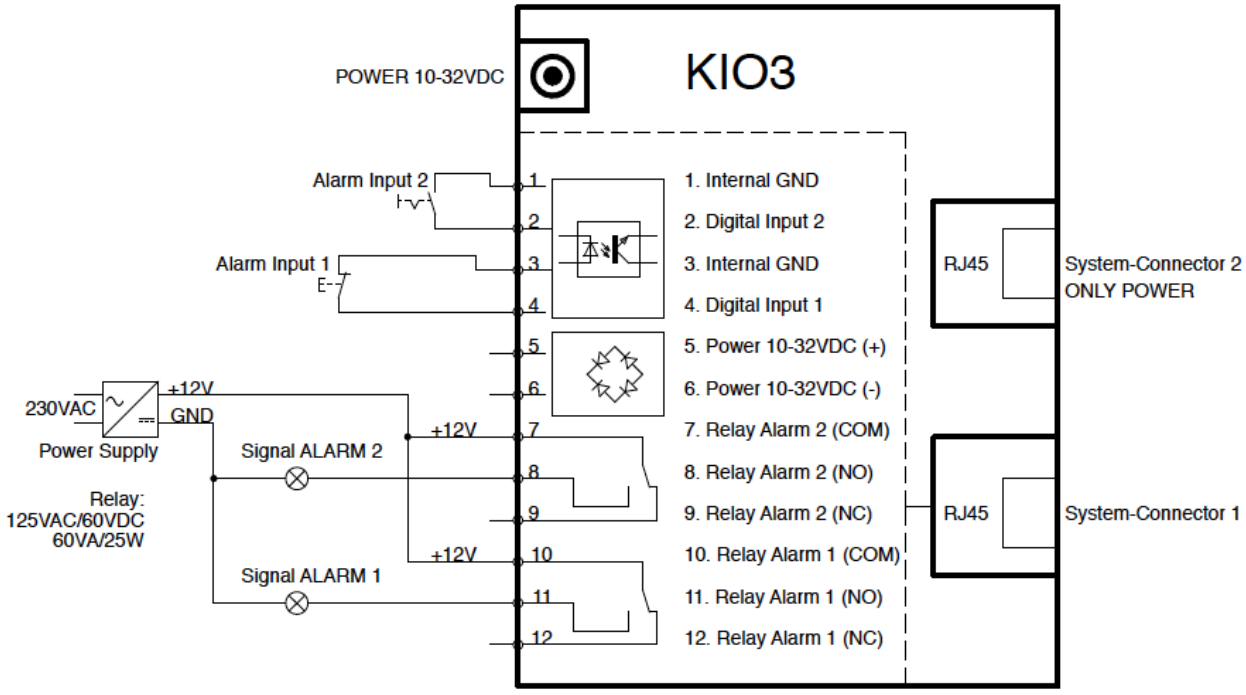
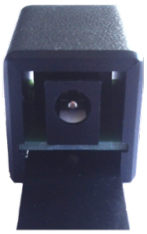
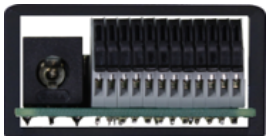


Figure 2: Circuit diagram



8.5. Overview and Application examples for Power-Adapters (KIO1-3)

Image	Description	Application examples
 **KIO1**	**Power-Adapter with digital I/O clips** Adapter block for the connection of 2 MultiSensor-RF to a power supply via the Kentix system jack. Additionally a terminal block for using the alarm inputs at one MultiSensor is available. **Terminal block:** • Digital inputs: 2 • Digital outputs: 0 • Power supply: Terminal block or AC adapter	• Operation of one Kentix leakage sensor at a MultiSensor-RF • Connection of external components to the alarm input of a MultiSensor (e.g. air conditioning, door contact)
 **KIO2**	**Power-Adapter** Adapter block with AC adapter for powering one Kentix MultiSensor via the Kentix System jack. **Terminal block:** • Digital inputs: 0 • Digital outputs: 0 • Power supply: AC adapter	• Power supply for one MultiSensor-RF/-LAN/-LAN-RF • Connection of one MultiSensor-RF to monitor the external power supply • Power supply for a Kentix Alarm sirene plus one MultiSensor-RF/-LAN/-LAN-RF via a RJ45 T-Adapter (included with Alarm sirene)
 **KIO3**	**Power-Adapter with digital I/O clips** Adapter block with 2 digital inputs and 2 relay-outputs and 2 Kentix System jacks for the connection of MultiSensors. **Terminal block:** • Digital inputs: 2 • Digital outputs: 2 • Power supply: Terminal block or AC adapter	• Connection of external components to the alarm input of a MultiSensor (e.g. air conditioning, door contact) • Connection of a LED to display the arm/disarm state via the 1st sensor output (relay 1) • Connection of a door control to open a door when disarming an alarm zone

8.6. Kentix Alarm sirene (KFLASH1)

The Kentix Alarm sirene can be used for an acoustical and optical signalization in case of an alarm.
It is suitable for an indoor and outdoor installation (protection class IP65).

The Alarm sirene is equipped with a 10 meter patch cable and a RJ45-connector and can be directly connected to the system jacks of an AlarmManager or to all MultiSensor-RF/-LAN/-LAN-RF using an additional adapter (RJ45-T-Adapter). The required adapters are included with the Alarm sirene.

Figure 1: Alarm sirene at AlarmManager
Simply plug in the Alarm sirene into one of the system jacks.
Power supply and alarm signalization is done via the AlarmManager.

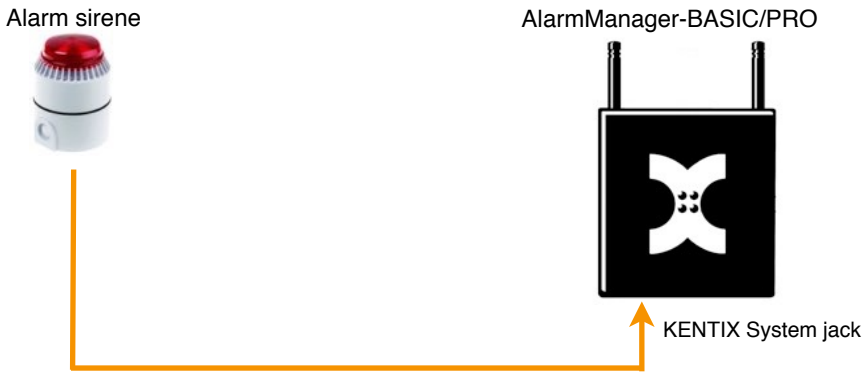
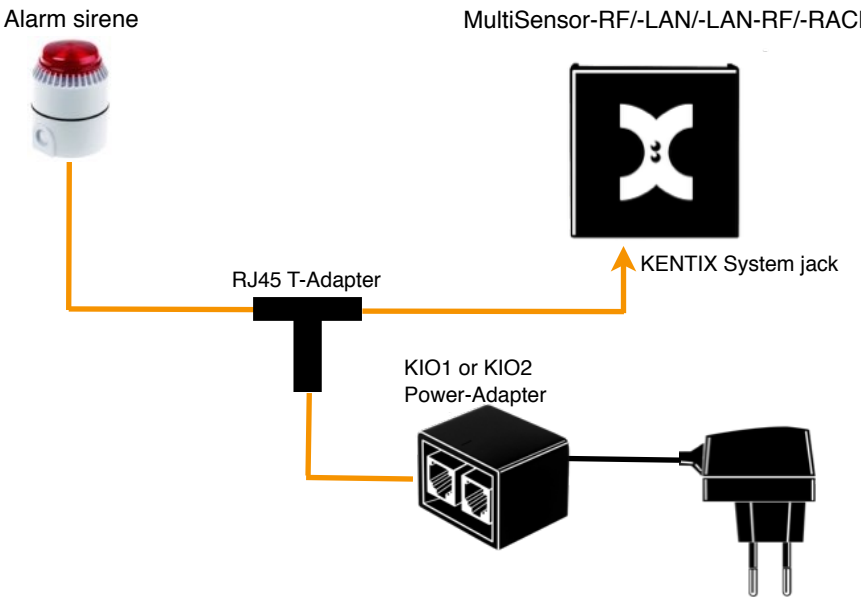


Figure 2: Alarm sirene at MultiSensor
Plug in the Alarm sirene into the RJ45 T-Adapter and connect the MultiSensor to the socket next to it using a patch cable. The power supply is done via a Power-Adapter (KIO2), which is connected to the opposite side of the T-Adapter.
When also the alarm input of the connected MultiSensor shall be used (e.g. by connecting a leakage sensor), a KIO2 Power-Adapter can be used instead of the KIO1. In this case all connection cables have to be patch cables.



8.6.1. Configuration

To trigger the Alarm sirene relay times have to be configured in the AlarmManager or the MultiSensor.

For the AlarmManager and all MultiSensors operating in AlarmManager mode the relay timings in the settings of the ControlCenters have to be used (menu item „Alarm behavior“).
Here one time for armed-active alarms and one time for always-active alarms can be defined.

When the Alarm sirene is connected directly to the AlarmManager, armed-active alarms trigger the buzzer of the sirene, always-active alarms the integrated flash-LED.

At a MultiSensor always the buzzer of the sirene is triggered, independent of the alarm type.
This is also the case when the sirene is connected to a MultiSensor-LAN/-RACK in Standalone-mode.

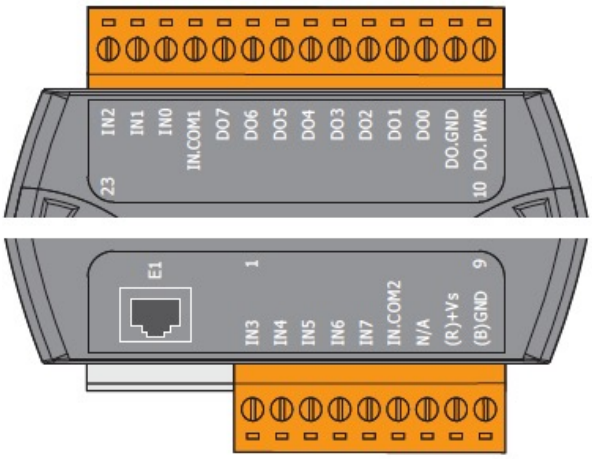
8.7. Kentix IO-Modules

The AlarmManager-PRO can be extended by additional digital Inputs and Outputs via special Expansion modules. For this 2 external modules (KIO7052 with 8 digital Inputs / Outputs and KIO7053 with 16 digital Inputs) are available.
Both modules are configured via a Web browser and are queried by the AlarmManager over the network.

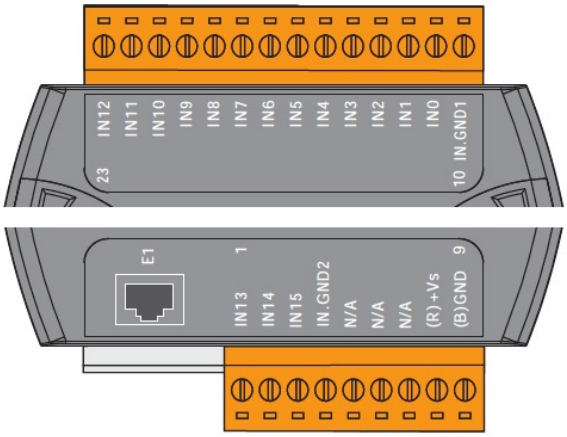
Commissioning and Configuration

Depending on the module type it can be powered via PoE or with an external power supply. Using a power supply it is necessary to regard the information in the data sheet, or only to use a power supply delivered by Kentix. Information for the wiring of the In- and Outputs can also be found in the data sheet.

Terminal assignment KIO7052



Terminal assignment KIO7053

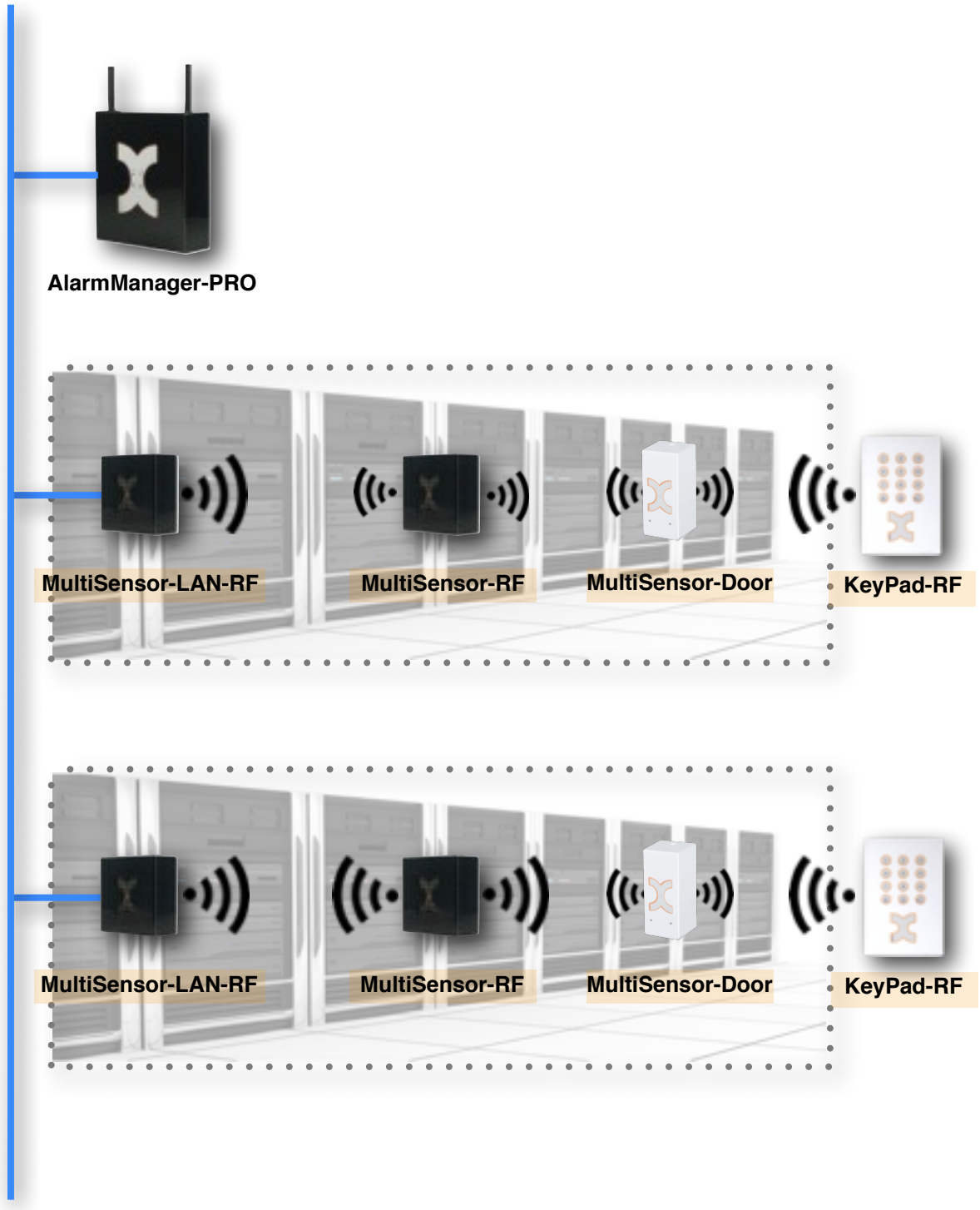


No	Step	Comment
1	Connect the network port E1 to a network switch with PoE support. Connect your PC to this switch respectively establish a network connection.	If you use a switch without PoE establish power supply via the connectors (R)+Vs and (B)-GND. Use the supplied power adapter-cable
2	Open the Web-Interface of the module via the default IP **192.168.255.1** and change the IP-settings in „Network Settings“ to your required settings. Default username and password: Admin/Admin	In the section „Web HMI“ the Inputs and Outputs of the module can be monitored for test purposes.
3	Start the Kentix ControlCenter and open the configuration of the I/O-module via „Settings“ -> „Advanced...“ -> „External Alarms“	Select the module type and set the configured IP-address.
4	Proceed with the setup for the wired external Inputs: Enter a name for the alarming and choose alarm assignment and the alarm logic. Eventually enter another alarm delay (default 1 sec.). Also select an alarm zone for every used input.	In the module KIO7052 for each alarming state one of the 8 Outputs is switched. Find the assignment of the Outputs in the data sheet of the module.
5	Save the configuration. After this the settings are directly active.	For testing purposes the state of the alarm inputs can be monitored in the table „MultiSensor Monitoring“.

8.8. MultiSensor-LAN-RF (LAN-ZigBee Repeater)

The MultiSensor-LAN-RF offers the same functionality as the MultiSensor-LAN.
Moreover it allows the creation of a dedicated radio network. With this option it is possible to realize a connection to distant RF-Components (MultiSensor-RF / -Door / KeyPads) via LAN/WAN. The configuration of the repeater and the connected components is done via the Kentix ControlCenter.

If the sensor is added as LAN-RF-Repeater, additional sensors can be added via the context menu (right mouse button) of the MultiSensor list. In this menu it is also possible to reset the radio network of the repeater.



9. Kentix AlarmManager Smartphone-App

With the Kentix-App a monitoring and control of a Kentix System via iPhone / iPad or Android devices is possible. In the following, functions and control of the app are described.

9.1. The Profile menu

When starting the app the profile selection menu is displayed.
With the „+“ Button in the upper right edge a new profile is created. To differentiate between multiple devices, enter a unique name and choose the device type.

Enter IP-address, username and password of the device. The password can optionally be saved. Username and password correspond to the access data of the web interface.
When the SMS control of the AlarmManager is activated, additional numbers and a PIN can be entered to switch the system from out of the network.
As starting screen either the Dashboard or the control menu can be selected. To save the profile, press the according button in the upper right.

9.2. AlarmManager

Dashboard
The dashboard shows - as on the web interface - an overview of the AlarmManager.
The controls MultiSensors and Server switch to a detailed view, where the corresponding measurement values and the state of the devices are displayed.
With „swiping gestures“ or via the selection menu in the upper right it is possible to switch between single sensors / servers. The selection menu additionally shows the general alarm state of all devices.

Control
The control menu displays the list of the AlarmManager‘s alarm zones.
Alarm zones, which the user is not allowed to switch, are greyed out in the overview.
For switching press the desired entry and choose a command in the selection menu.

Logbook
Pressing one of the entries opens a detailed view. By selecting a filter the logbook can be sorted by different message types (e.g. alarms or system messages).

9.3. SMS Control

When the AlarmManager cannot be accessed via the local network, it can be switched via SMS commands. Trying to access without network connection, the app automatically starts into the corresponding menu, when a telephone number for the AlarmManager is entered in the profile.
Before sending the SMS-text the message has to be confirmed.

9.4. MultiSensor-LAN / -LAN-RF / -RACK

To control a MultiSensor-LAN or MultiSensor-RACK in standalone mode connect to it via a profile - as described for the AlarmManager. The device type must be set to „MultiSensor“.
After connecting an overview of the sensors measured values is displayed.
The button „Motion detection“ switches the arm/disarm state of the MultiSensor.
Via the button „Alarm output 2“ the 2nd digital output of the MultiSensor can be activated for 30 seconds.

Note:
After an alarm was triggered the device can first be rearmed again after 1 minute.

For the switching functions (motion / digital output) the AlarmManager-communication in the MultiSensor must be inactive.

10. Data sheets

10.1.Data sheet AlarmManager-BASIC/PRO (KAM-BASIC/PRO)

Number of MultiSensor (KAM-BASIC) **Number of MultiSensor (KAM-PRO)**	Max 10 pc MultiSensor-RF Max 100 pc MultiSensor-RF / -LAN / -RACK / -DOOR / -RACK-MINI
Number of KeyPad (KAM-BASIC) **Number of KeyPad (KAM-PRO)**	Max 3 pc KeyPad connectable Max 100 pc KeyPad connectable
Internal Buzzer	85dB, 2.3kHz
Ext. alarm inputs	1 x alarm input (Armed-Active, Always-Active) 1 x external arm/disarm Both for external potential-free contacts
Ext. relay outputs	2 x relay with alt. contact (Armed-Active, Always-Active) max contact power: 125VAC/60VA, 60VDC/25W
Internal temper sensor	Internal vibration sensor (high sensitive)
LED	RUN (yellow) GSM (yellow) ALARM (red) ARMED (red)
Radio	ZigBee® 2,4GHz ISM Band +3dBm output power, IEEE802.15.4, encryption AES 128 Bit
LAN	10/100Mbit
Integrated GSM Modem	Quad Band (GSM/GPRS) 850/900/1800/1900MHz integrated SIM card holder
Power supply	10-32VAC/DC power consumption ca 2W
Integrated UPS	4 minutes up time by internal high capacitor. Control of external power supply.
Kentix system jack	2 pc. RJ45, for external plug´n play modules (KIO1, KIO2, KPS,...)
Chassis	Material: PS 130 x 90 x 45 mm Weight approx. 300g Color: High-White, Carbon-Black
Environmental conditions	Temperature 0 - 45°C / 32 - 113°F Humidity 5-95%, not condensing
Types	KAM-BASIC-B = Chassis carbon black KAM-BASIC-W = Chassis high white
Content of delivery	Plug power supply 100-230VAC/24VDC, 12Watt 2 pc of antennas (ZigBee, GSM) PowerAdapter, mounting bracket and material
Accessories	Leakage sensor (KLS02P) External Antennas for ZigBee and GSM
Approvals	CE

10.2.Data sheet MultiSensor-RF (KMS-RF)

Connectable devices	AlarmManager-BASIC (KAM-BASIC) AlarmManager-PRO (KAM-PRO)
Sensor - temperature	range -20 to 99°C / -3 to 210°F (exactness ± 0,5°)
Sensor - relative humidity	range 0 to 100% (exactness ± 3%)
Dew point	calculated in °C/°F
Sensor - motion	PIR sensor, adjustable responsivity detection cone: 100° range: approx. 8m
Sensor - vibration	3 axes vibration sensor (adjustable)
Sensor - carbon monoxide (CO)	0-10.000ppm measurement ± 10% Internal resolution: 20-200ppm (0-100%) lifetime approx. 5 years
Buzzer	85dB, 2.3kHz
Sensor - external alarm input	1 x alarm input (Armed-Active, Always-Active) 1 x sabotage input Both for external dry contacts
Ext. output	2 x open collector 0.1A/12V (alarming, remote switching)
LED	ALARM (red) RUN (green)
Radio	ZigBee® 2,4GHz ISM band +3dBm output power, IEEE802.15.4, encryption AES 128 Bit
Power supply	12-32VAC/DC power consumption. ca 0.5W
Integrated UPS	4 minutes up time by internal high capacitor. Control of external power supply.
Kentix System-jack	RJ45, for external plug´n play modules (KIO1, KIO2, KPS,...)
Chassis	Material: PS 90 x 90 x 45 mm Wight: approx. 100g Color: High White, Carbon Black
Environmental conditions	Temperature 0 - 45°C / 32 - 113°F Humidity 5-95%, not condensing
Types	KMS-RF-B/W B = Chassis Carbon-Black W = Chassis High-White
Content of delivery	Mounting bracket and material
Accessories	PowerAdapter (KIO1) Plug power supply with 6m modular cable (KOP) Leakage sensor (KLS02P)
Approvals	CE

10.3.Data sheet MultiSensor-LAN (KMS-LAN)

Connectable devices	Stand-Alone operation (integrated web server) AlarmManager-PRO
Sensor - temperature	range -20 to 99°C / -3 to 210°F (exactness ± 0,5°)
Sensor - Relative humidity	range 0 to 100% (exactness ± 3%)
Dew point	calculated in °C/°F
Sensor - motion	PIR sensor, trigger sensitivity configurable detection cone: approx. 100° range: approx. 8m
Sensor - vibration	3 axes vibration sensor (adjustable)
Sensor - carbon monoxide (CO)	0-10.000ppm measurement ± 10% Internal resolution: 20-200ppm (0-100%) lifetime approx. 5 years
Buzzer	85dB, 2.3kHz
Sensor - external alarm input	1 x alarm input (Armed-Active, Always-Active) 1 x sabotage input wiring potential free
External alarm output	2 x open collector 0.1A/12V (alarming, remote switching)
LED	ALARM (red) RUN (green) LINK/ACT at the LAN jack
LAN	10/100Mbit LAN connection integrated web server
SNMP (Simple Network Management Protocol)	SNMP V2 (write/read) SNMP Traps
power supply with PoE	12-72VAC/DC power consumption ca. 1.5W PoE class 1
power supply with power supply unit	12-32VAC/DC power consumption ca. 1.5W over system jack
KENTIX system jack	RJ45, for external plug´n play modules (KIO1)
Chassis	Material: PS 90 x 90 x 45 mm Weight approx. 100g Color: high white, carbon black
Environmental conditions	Temperature 0 - 45°C / 32 - 113°F Humidity 5-95%, non-condensing
Types	KMS-LAN-B (Chassis Carbon-Black) KMS-LAN-W (Chassis High-White)
Content of delivery	Mount bracket, Mount material
Accessories	PoE Injector (KPOE150S) PowerAdapter (KIO1) Plug power supply with 6m modular cable (KOP) Leakage sensor (KLS02P)
Approvals	CE

10.4.Data sheet MultiSensor-LAN-RF (KMS-LAN-RF)

Connectable devices	Stand-Alone operation (integrated web server) AlarmManager-PRO
Sensor - temperature	range -20 to 99°C / -3 to 210°F (exactness ± 0,5°)
Sensor - Relative humidity	range 0 to 100% (exactness ± 3%)
Dew point	calculated in °C/°F
Sensor - motion	PIR sensor, trigger sensitivity configurable detection cone: approx. 100° range: approx. 8m
Sensor - vibration	3 axes vibration sensor (adjustable)
Sensor - carbon monoxide (CO)	0-10.000ppm measurement ± 10% Internal resolution: 20-200ppm (0-100%) lifetime approx. 5 years
Buzzer	85dB, 2.3kHz
Sensor - external alarm input	1 x alarm input (Armed-Active, Always-Active) 1 x sabotage input wiring potential free
External alarm output	2 x open collector 0.1A/12V (alarming, remote switching)
LED	ALARM (red), RUN (green) LINK/ACT at the LAN jack
LAN	10/100Mbit LAN connection integrated web server
Radio	ZigBee® 2,4GHz ISM band +3dBm output power, IEEE802.15.4, encryption AES 128 Bit
SNMP (Simple Network Management Protocol)	SNMP V2 (write/read) SNMP Traps
power supply with PoE	12-72VAC/DC power consumption ca. 1.5W PoE class 1
power supply with power supply unit	12-32VAC/DC power consumption ca. 1.5W over system jack
KENTIX system jack	RJ45, for external plug´n play modules (KIO1)
Chassis	Material: PS 90 x 90 x 45 mm, Weight approx. 100g Color: high white, carbon black
Environmental conditions	Temperature 0 - 45°C / 32 - 113°F Humidity 5-95%, non-condensing
Types	KMS-LAN-B (Chassis Carbon-Black) KMS-LAN-W (Chassis High-White)
Content of delivery	Mount bracket, Mount material
Accessories	PoE Injector (KPOE150S) Plug power supply (KOP) Power-Adapter (KIO1) Leakage sensor (KLS02P)
Approvals	CE

10.5.Data sheet MultiSensor-RACK (KMS-RACK)

Connectable devices	Stand-Alone operation (Integrated Web-Server) AlarmManager-PRO
Sensor - temperature	range -20 to 99°C / -3 to 210°F (exactness ± 0,5°)
Sensor - Relative humidity	range 0 to 100% (exactness ± 3%)
Dew point	calculated in °C/°F
Sensor - motion	3 axes vibration sensor (adjustable)
Sensor - carbon monoxide (CO)	Fire detection via CO-Sensor Internal resolution: 20-200ppm (0-100%) adjustable Sensor-lifetime: 5 years (replaceable)
Buzzer	85dB, 2.3kHz
Sensor - external alarm inputs / outputs	2 Kentix System-jacks (SYS 1/2) to connect external Plug´n Play modules (RJ45) like door contacts , leakage-sensors, external alarms. Assignment: 2 x Alarm input (Armed-Active, Always-Active) 2 x Open Collector output 0.1A/12V (1x Alarming, 1x Remote control)
Sensor-Energy measurement	Voltage (V), Current (A), Active Power (W), Apparent power (VAR), Consumption (kWh), Power factor (%), Consumption total (kWh), Consumption per month (kWh), Costs (Currency)
Display	OLED Display to display the actual measurement values LEDs to display ALARMs and RUN
LAN	10/100 Mbit LAN connection (IEEE 802.3) integrated web-Server
SNMP - Data Interfaces (Simple Network Management Protocol)	SNMP/V2 (write/read) and SNMP Traps XML Data-export for measured values
Power supply	100-240VAC, power consumption approx. 4W Supply of PDU 1+2 with IEC-connector type C20/16A
PDU Connection (Power Distribution Unit)	2 separate PDU with 4 IEC power outlets (C13/10A) per PDU with strain reliefs Maximum power consumption 7.200VA with 3.600VA each for PDU-1/2 PDU-1 and PDU-2 separately switchable with timer- and reset-function
Measurement accuracy (at 20°C ambient temperature)	Voltage (RMS 90-260V) +/- 0,5% Current (RMS 0,002-12A) +/- 0,5% Active power (1.5-2.760W) +/- 0,5%
Protection PDU 1/2	4 pcs. 10A micro fuse (5x20mm), time-lag - TH 250V with extinguishant
Casing	IT-Rack 1 HE (44mm), mounting brackets for front and rear Dimensions: 418 x 165 x 44 mm (B x T x H), weight 1.25kg
Environmental conditions	Temperature 0 - 45°C / 32 - 113°F Humidity 5-95%, not condensing
Content of delivery	2 pcs. IEC power cable with 3m (Type: C20/C19), 19“ mounting-brackets
Accessories	Leakage sensor (KLS02P) Power-Adapter (KIO1)
Approvals	CE

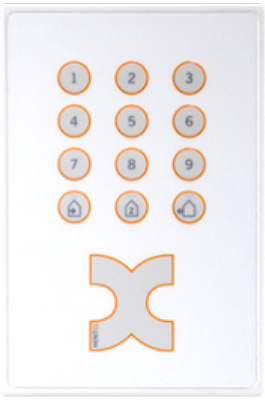
10.6.Data sheet MultiSensor-Door (KMS-Door)

Connectable devices	AlarmManager-BASIC (KAM-BASIC) AlarmManager-PRO (KAM-PRO)
Sensor - temperature	range -20 to 99°C / -3 to 210°F (exactness ± 0,5°)
Sensor - Relative humidity	range 0 to 100% (exactness ± 3%)
Dew point	calculated in °C/°F
Sensor - Acceleration sensor	0-3G, 3 axes, adjustable sensitivity
Sensor - Gyrometre	angular sensitivity adjustable (5-360°, 3 axes)
Buzzer	65dB, 2.3kHz
LED	Multicolor-LED (Red/Green) ALARM (Red) Teach-in (Green)
Radio	ZigBee® 2,4GHz ISM band +3dBm output power, IEEE802.15.4, encryption AES 128 Bit
Power supply	Battery: 1x Lithium Ion 1/2 AA 3,6V (1200 mAh) Battery life approx. 2 years, depending on energy profile
Chassis	Material: PS 63 x 29 x 28 mm Weight approx. 50g Color: high white
Environmental conditions	Temperature 0 - 45°C / 32 - 113°F Humidity 5-95%, non-condensing
Types	KMS-Door-W (casing High-White)
Accessories	1x Li-Battery 3,6V/1200mAh Mounting material Magnet for REED-contact
Approvals	CE

10.7.Data sheet MultiSensor-RACK-MINI (KMS-RACK-MINI)

Connectable devices	AlarmManager-BASIC (KAM-BASIC) AlarmManager-PRO (KAM-PRO)
Sensor - temperature	range -20 to 99°C / -3 to 210°F (exactness ± 0,5°)
Sensor - Relative humidity	range 0 to 100% (exactness ± 3%)
Dew point	calculated in °C/°F
Sensor - Acceleration sensor	0-3G, 3 axes, adjustable sensitivity
Sensor - Gyrometer	angular sensitivity adjustable (5-360°, 3 axes)
Buzzer	65dB, 2.3kHz
LED	Multicolor-LED (Red/Green) ALARM (Red) Teach-in (Green)
Radio	ZigBee® 2,4GHz ISM band +3dBm output power, IEEE802.15.4, encryption AES 128 Bit
Power supply	USB: USB1.1 / USB2.0 Mini-USB 5V/40mA
Chassis	Material: PS 63 x 29 x 28 mm Weight approx. 35g Color: carbon black
Environmental conditions	Temperature 0 - 45°C / 32 - 113°F Humidity 5-95%, non-condensing
Types	KMS-Door-B (casing Carbon/Black)
Accessories	USB-Connector cable 1,8m Mounting material Magnet for REED-contact
Approvals	CE

10.8.Data sheet KeyPad (KKP)

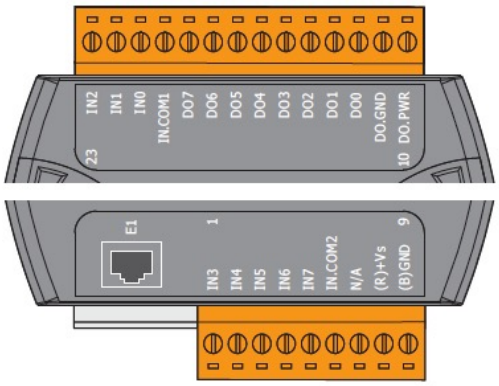


Connectable devices	AlarmManager-BASIC/PRO MultiSensor-LAN-RF
Buzzer	70dB, 2.3kHz
LED	Zone (RED/GREEN) Arm (RED/GREEN) Disarm (RED/GREEN)
Radio	ZigBee® 2,4GHz ISM band +3dBm output power, IEEE802.15.4, encryption AES 128 Bit
Power supply (battery)	Battery 2 pc. 1.5V/AAA Battery life approx. 3 years (without RFID) Battery life approx. 2 years (with RFID) depending on the number of switching cycles
Chassis	Material: PS 135 x 90 x 19 mm Weight ca. 100g Color: High-White Protection class: IP40
Environmental conditions	Temperature 0 - 45°C / 32 - 113°F Humidity 5-95%, not condensing
Types	KKP KKP-LEGIC® (with RFID reader) KKP-MIFARE® (with RFID reader) KKP-HITAG® (with RFID reader)
Content of delivery	KKP: Battery KKP-LEGIC/MIFARE: 2 pc. of RFID Token
Accessories	Battery KeyPad 1.5V/AAA, 1000mAh RFID Token Legic® RFID Token Mifare® RFID Token Hitag®
Approvals	CE

10.9.Data sheet digital I/O expansion-module (KIO7052)

Front

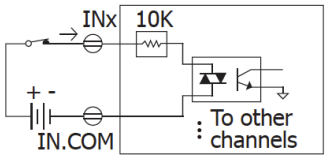
Back



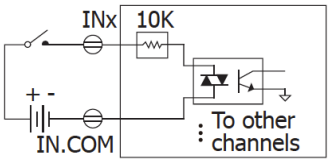
Pin assignment KIO7052

Description	Expansion module for connection to the AlarmManager-PRO. This module extends the external inputs and outputs of AlarmManager on additional 8 digital inputs and 8 digital outputs. Communication is via Ethernet, so the module can be mounted anywhere. The configuration is done in the software interface of the AlarmManager-PRO. The module provides a build in web-server with for simple IP configuration and testing of the inputs and outputs without any additional software.
Connectivity	Connection to Kentix AlarmManager-PRO External Alarms of existing system equipment (HVAC, UPS systems, generators, alarm systems, etc.)
Configuration	Build in Web-Server (HTTP), Default IP: **192.168.255.1** (Admin/Admin)
Protocols	KAM-IO communication via IP-PORT: 502 (Default)
Security	ID, Password and IP-Filter
Terminals	Plug-able screw-terminal for cables up to 1mm²
Inputs	Digital wet inputs ON: +10–50VDC, OFF: +4DC Input impedance: 10kOHM Over voltage protection: 70VDC
Outputs	Open-Collector outputs 10–40VDC Current 650mA (bis 1.1A Over current protection) Over voltage protection: 47VDC
Fixed output assignment	DO1-DO8: Armed-Active, Always-Active, Sabotage, General-Alarm, Arm-Zone1, Arm-Zone2, Arm-Zone3, Arm-General
Isolation	Ethernet 1,5kVDC, I/O 3,7kVrms
Environment	Operation temperature -25°C to +75°C, Rel. humidity 10–90%
Network	LAN 10/100 Base-TX
Power supply	PoE (Class 1) or externes power supply 12–30VDC, 4.3Watt
Chassis	72 x 123 x 35 mm (DIN-rail mounting)
Content of delivery	KIO7052, 3m patch-cable, power-cable, manual
Approvals	CE
Accessories	Power-supply or PoE injector if no PoE supply is available

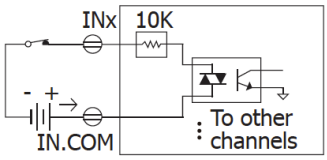
INPUT sink signal (High=1)



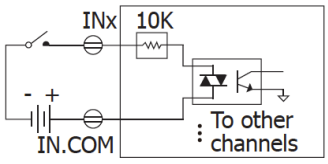
INPUT sink signal (Low=0)



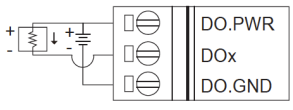
INPUT sink signal (High=1)



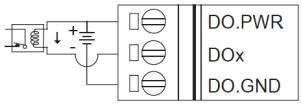
INPUT source signal (Low=0)



OUTPUT relay



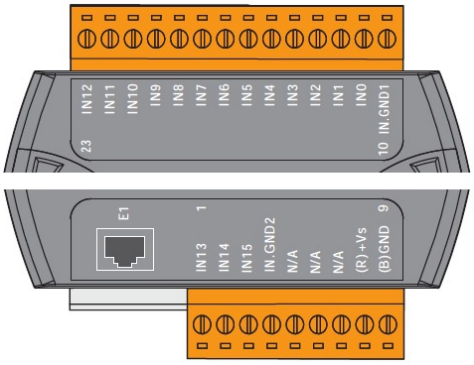
OUTPUT sink (resistive)



10.10.Data sheet digital I/O expansion-module (KIO7053)

Front

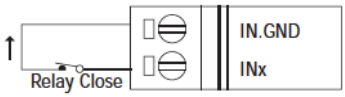
Back



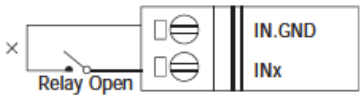
Pin assignment KIO7053

Description	Expansion module for connection to the AlarmManager-PRO. This module extends the external inputs of the AlarmManager on additional 16 digital alarm inputs. Communication is via Ethernet, so the module can be mounted anywhere. The configuration is done in the software interface of the AlarmManager-PRO. The module provides a build in web-server with for simple IP configuration and testing of the inputs and outputs without any additional software.
Connectivity	Connection to Kentix AlarmManager-PRO External Alarms of existing system equipment (HVAC, UPS systems, generators, alarm systems, etc.)
Configuration	Build in Web-Server (HTTP), Default IP: **192.168.255.1** (Admin/Admin)
Protocols	KAM-IO communication via IP-PORT: 502 (Default)
Security	ID, Password and IP-Filter
Terminals	Plug-able screw-terminal for cables up to 1mm²
Inputs	Digital dry contacts for potential-free wiring ON: Open OFF: Close to GND
Isolation	Ethernet 1,5kVDC, I/O 3,7kVrms
Environment	Operation temperature -25°C to +75°C, Rel. humidity 10–90%
Network	LAN 10/100 Base-TX
Power supply	PoE (Class 1) or externes power supply 12–30VDC, 4.3Watt
Chassis	72 x 123 x 35 mm (DIN-rail mounting)
Content of delivery	KIO7053, Power supply 24VDC, manual
Approvals	CE
Accessories	Power-supply or PoE injector if no PoE supply is available

INPUT dry contact (High=1)



INPUT dry contact (Low=0)



10.11.Data sheet leakage sensor (KLS03)

Connectivity	AlarmManager-BASIC (KAM-BASIC) AlarmManager-PRO (KAM-PRO) MultiSensor-RF (KMS-RF) MultiSensor-LAN (KMS-LAN) MultiSensor-RACK (KMS-RACK)
Sensor-humidity/water	Conductivity measurements Adjustable sensitivity
LED	ALARM LEAKAGE (Red) STATE OK (Green)
Connectors	2 x RJ45 for standard patch cables
Power supply	Via Kentix system jack
Daisy chaining - linking	Up to 5 sensors, max. 50m combined cable length
Chassis	Material: PS 80 x 80 x 80 mm Weight: ca. 35g Color: RAL7035
Environment	Temperature 0 - 60°C Humidity 5-95%, non condensing
Type	KLS03
Protection class	IP64
Content of delivery	10m patch cabel Additional fitting for chaining
Approvals	CE

11. Checklist - Acceptance report

After the successful installation, we implicitly recommend to do a function-check of all components, to ensure the clean operation. Use the following check-list for this.
It can also be used as an acceptance report for the system handover to the customer.

IMPORTANT!
To ensure full functionality, we recommend to repeat this check periodically (about all 6 months).

Acceptance report - AlarmManager-BASIC/PRO

Device	Function	
AlarmManager BASIC+PRO	**actual software-/firmware version - check www.kentix.com or in the Kentix ControlCenter „Help - Check for update“**	☐
	Login to AlarmManager	☐
	All sensors / server available in dashboard	☐
	Actualization of sensor values in dashboard / web-interface (test by triggering the motion sensors)	☐
	Arm/disarm switching (manual / time controlled)	☐
	Vibration alarm from AlarmManager and MultiSensors(when used)	☐
	E-mail / SMS alarming	☐
	External alarm input on AlarmManager	☐
	Relays 1+2 (when used)	☐
	SNMP functionality	☐
	Network monitoring (Test by opening network connection)	☐
	SMS Gateway	☐
PRO functions	SNMP Trap to SMS Gateway	☐
	Camera Control (Test by triggering alarm)	☐
	IO-Module (In- / Outputs - test when used)	☐
	Alarm forwarding to alarm control centers	☐

Date

Customer

Technical service

Acceptance report - MultiSensors / KeyPads / Leakage-sensor

Device	Place of installation	Function	
Keypad #1		Test arm/disarm	☐
Keypad #2		Test arm/disarm	☐
Keypad #3		Test arm/disarm	☐
Leakage-sensor #1		Fluidity contact -> alarm trigger	☐
Leakage-sensor #2		Fluidity contact -> alarm trigger	☐

	Temp./Humidity/Dewp	Motion	Carbon monoxide	Ext. alarm input	Ext. sabotage input.	Place of installation
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	
MultiSensor #	☐	☐	☐	☐	☐	

Date ______________________ Customer ______________________

Technical service ______________________

12. Support

For technical questions about the products please contact our support team by e-mail.
Send an e-mail with your questions and all the important details of your application and used versions to our support address.

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Autenbornstrasse 2
55743 Idar-Oberstein

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